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In cooperation with
Purdue University
Agricultural Experiment
Station and Indiana
Department of Natural
Resources, Division of Soil
Conservation and State
Soil Conservation Board

Soil Survey of St. Joseph County, Indiana



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How To Use This Soil Survey

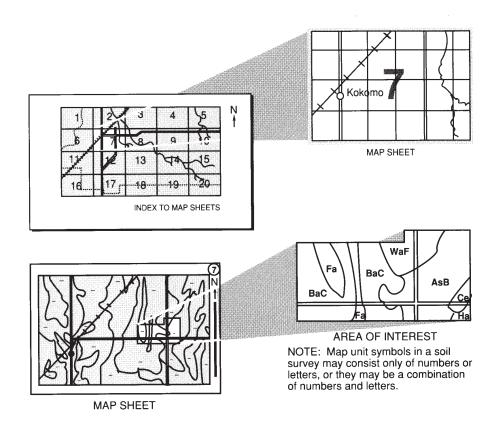
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2001. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service; the Purdue University Agricultural Experiment Station; and the Indiana Department of Natural Resources, Division of Soil Conservation and State Soil Conservation Board. This soil survey update is part of the technical assistance provided to the St. Joseph County Soil and Water Conservation District. Financial assistance was provided by the Board of County Commissioners of St. Joseph County and the Polis Center of St. Joseph County.

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Cover: Soybean stubble and urban development in an area of Tracy sandy loam, 1 to 5 slopes.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Jane E. Hardisty State Conservationist Natural Resources Conservation Service

Soil Survey of St. Joseph County, Indiana

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Fieldwork by Rex A. Brock, David A. Gehring, Shane L. McBurnett, and Richard W. Neilson. Natural Resources Conservation Service

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St. Joseph County is in the north-central part of Indiana (fig. 1). It has a total area of 295,424 acres, or 467 square miles. The county is bordered on the north by Michigan, on the west by LaPorte County, on the east by Elkhart County, and on the south by Marshall County. South Bend, the county seat, is about 96 miles from Chicago.

About 52 percent of the land in St. Joseph County is highly productive and is used as farmland. The sale of farm products and high value specialty crops is a significant source of revenue in the county. Corn and soybeans are the main crops. Mint, seed corn, hay, vegetables, nursery crops, and Christmas trees also are important as sources of revenue. Dairy cattle, hogs, some beef cattle, and horses are the main varieties of livestock.

The county, which is near the center of the Great Lakes industrial belt, has many industrial and manufacturing firms providing full-time employment to many residents from Indiana and Michigan.

This soil survey updates the survey of St. Joseph County published in 1977 (Benton, 1977). It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the Survey Area

This section provides some general information about St. Joseph County. It describes history and development; physiography, relief, and drainage; farming; water resources; trends in population and land use; transportation facilities; schools;

manufacturing and agricultural business services; and climate.

History and Development

The Potowatomi Indians and some Miami Indians were the original inhabitants of St. Joseph County. The first European explorers were Marquette in 1673 and LaSalle in 1679. Pierre Navarre was the first European settler. He established a trading post in South Bend in 1820. The settlers followed Indian trails in establishing their transportation system.

The county was established by the Indiana State Legislature in 1830. Mishawaka was incorporated as a town in 1834 and South Bend was incorporated in 1835.

Physiography, Relief, and Drainage

St. Joseph County includes three major land resource areas (MLRAs). The Southwestern Michigan Fruit and Truck Belt (MLRA 97) is in the extreme northwest corner of the county. The Southern Michigan and Northern Indiana Drift Plain (MLRA 98) covers most of the northern and western parts of the county, and the Indiana and Ohio Till Plain (MLRA 111) covers the southeastern part of the county (USDA, 1981). The drainage divide between the Mississippi Basin and the Great Lakes Basin crosses St. Joseph County. About two-thirds of the county drains into the Kankakee River system, which flows to the Mississippi River, and one-third drains into the St. Joseph River system, which flows into Lake Michigan.



Figure 1.—Location of St. Joseph County in Indiana.

Farming

Farming acres in St. Joseph County have steadily declined over the last few decades. In 1997, St. Joseph County had 666 farms covering 227,874 acres. The average farm size is 231 acres (Gann and Liles, 2000).

Corn and soybeans are the major crops. Specialty crops such as mint, potatoes, onions, and vegetables are an important agricultural commodity in St. Joseph County. Livestock mainly consists of diary cattle, although many rural families raise horses.

Water Resources

The St. Joseph River flows west from Elkhart County where it enters Indiana from Michigan. Flowing through Mishawaka and South Bend, it re-enters Michigan just north of South Bend, eventually discharging to Lake Michigan. The Dixon West Place Ditch (just southwest of South Bend) is the headwaters of the Kankakee River. The Kankakee flows southwest into Illinois.

St. Joseph County has a complex connection of several major unconsolidated aquifer systems made up of thick sand and gravel deposits between larger glacial till deposits. These systems, although highly vulnerable to contamination, also produce one of the most abundant supplies of ground water for drinking, irrigation, and industrial/commercial uses.

Regionally, the flow of the ground water follows the topography and ultimately flows to the rivers and their major tributaries.

Trends in Population and Land Use

In 1980, St. Joseph County had a population of 241,617. The population increased by 10 percent between 1980 and 2000. The population was 265,559 in 2000.

During the period from 1992 to 1997, the amount of urbanized land increased by about 12 percent and all categories of agricultural land decreased by the same amount (Gann and Liles, 1994; Gann and Liles, 2000). In 1997, 53 percent of the county was used for agricultural purposes. Approximately 3,000 acres of land is being converted to urban uses each year. This trend is expected to continue.

Transportation Facilities

St. Joseph County is within a highly developed transportation network. The area is served by 6 railroad systems which include 2 passenger railroads (Amtrak and the South Shore) and 4 freight rail services (Grand Trunk Western, Norfolk & Southern, CSX, and South Shore Freight). The St. Joseph County Airport provides major airline service to principal cities of the United States. Major roadways include U.S. Highways 6, 20, 31, and 933; Indiana Highways 2, 4, 23, 104, 123, and 331; the Northern Indiana Tollroad; and Interstate Highways 80 and 90.

Schools

Six public school systems serve St. Joseph County. In addition, St. Joseph County is served by 2 parochial high schools, 15 private, independent schools, and 7 colleges and universities, including Notre Dame. Population and development trends have been on the increase throughout the county and these schools are addressing ways to increase the capacity of their facilities to accommodate more students.

Manufacturing and Agricultural Business Services

Throughout the county, several elevators serve the agricultural community by storing and marketing grain, mainly corn and soybeans. Other agriculture-related businesses include equipment, fertilizer, chemical, and seed dealers, as well as the ethanol plant. There are many alternative crops in St. Joseph County including mint, potatoes, seed corn, popcorn, and onions.

The first industries in the county were established in the 1830s. The Studebaker Wagon Works was established in 1852, and other large manufacturing firms were established in later years. In the last few decades, St. Joseph County has moved into the service-oriented work arena. More than 50 percent of the work force holds jobs in service areas such as medical and governmental. More than 16 percent of the work force is employed in retail businesses.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at South Bend in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 26.1 degrees F and the average daily minimum temperature is 18.9 degrees. The lowest temperature on record, which occurred at South Bend on January 19, 1994, was -21 degrees. In summer, the average temperature is 71 degrees and the average daily maximum temperature is 81 degrees. The highest temperature on record, which occurred at South Bend on June 25, 1988, was 104 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 39.22 inches. Of this total, about 21.5 inches, or 55 percent, usually falls in May through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4.69 inches at South Bend on June 25, 1968. Thunderstorms occur on about 42 days each year, and most occur between April and September.

The average seasonal snowfall is around 81 inches. In general, there is slightly more snow on average in

the northern and western portions of the county which are closer to Lake Michigan. The greatest snow depth at any one time during the period of record at South Bend was 41 inches recorded on January 30, 1978. On an average, 72 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 15.6 inches recorded on January 26, 1978.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 82 percent. The sun shines about 66 percent of the time possible in summer and 38 percent in winter. The prevailing wind is from the southwest, except from the north during March and April. Average windspeed is highest, between 11 and 12 miles per hour, from November to April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of

soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the

soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions under the heading Map Unit Composition. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough

observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Crosier loam, 0 to 1 percent slopes, is a phase of the Crosier series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Riddles-Metea complex, 5 to 10 percent slopes, eroded, is an example.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. The map unit Pits, gravel, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see Contents) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AahAK—Abscota loamy sand, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

 $\textit{Position on the landform:} \ \textit{Backslopes, shoulders, and}$

summits

Map Unit Composition

The moderately well drained Abscota and similar soils—80 percent

The poorly drained Cohoctah and similar soils— 10 percent

The somewhat poorly drained Waterford and similar soils—7 percent

The poorly drained Gravelton and similar soils— 3 percent

Interpretive Groups

Land capability classification: Abscota—4s Prime farmland status: Not prime farmland

Properties and Qualities of the Abscota Soil

Parent material: Sandy alluvium

Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.0 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 3.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, December)

Frequency of flooding: Occasional (March, April, May, June)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

AatAN—Ackerman muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains
Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Ackerman, drained, and similar soils—85 percent

The very poorly drained Moston and similar soils— 10 percent

The very poorly drained Antung and similar soils— 5 percent

Interpretive Groups

Land capability classification: Ackerman—4w Prime farmland status: Not prime farmland

Properties and Qualities of the Ackerman, Drained, Soil

Parent material: Herbaceous organic material over coprogenic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 7.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, December)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

AbhAN—Adrian muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains,

and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The very poorly drained Adrian, drained, and similar soils—75 percent

The very poorly drained Antung and similar soils— 10 percent

The very poorly drained Edwards and similar soils— 6 percent

The very poorly drained Houghton and similar soils— 6 percent

The very poorly drained Muskego and similar soils— 3 percent

Interpretive Groups

Land capability classification: Adrian—3w

Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Adrian, Drained, Soil

Parent material: Herbaceous organic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches

Available water capacity: About 15.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

AbhAU—Adrian muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Adrian, undrained, and similar soils—75 percent

The very poorly drained Edwards and similar soils— 8 percent

The very poorly drained Houghton and similar soils— 7 percent

The very poorly drained Muskego and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Adrian—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Adrian, Undrained, Soil

Parent material: Herbaceous organic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches

Available water capacity: About 15.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

ApuAN—Antung muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Antung, drained, and similar soils—75 percent

The very poorly drained Adrian and similar soils— 15 percent

The very poorly drained Ackerman and similar soils— 5 percent

The very poorly drained Madaus and similar soils— 5 percent

Interpretive Groups

Land capability classification: Antung—3w

Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Antung, Drained, Soil

Parent material: Herbaceous organic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.6 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, December)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

AxvA—Auten loam, 0 to 1 percent slopes

Setting

Landform: Moraines, outwash plains, and terraces Position on the landform: Summits, shoulders, and backslopes

Map Unit Composition

The somewhat poorly drained Auten and similar soils—82 percent

The somewhat poorly drained Brady and similar soils—8 percent

The poorly drained Quinn and similar soils—5 percent
The poorly drained Rensselaer and similar soils—
5 percent

Interpretive Groups

Land capability classification: Auten—2s
Prime farmland status: Prime farmland where drained

Properties and Qualities of the Auten Soil

Parent material: Loamy and/or sandy outwash Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: 20 to 35 inches to strongly

contrasting textural stratification

Available water capacity: About 6.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

BaaA—Bainter sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Bainter and similar soils—85 percent The somewhat poorly drained Brady and similar soils—5 percent

The excessively drained Bristol and similar soils— 5 percent

The moderately well drained Bronson and similar soils—5 percent

Interpretive Groups

Land capability classification: Bainter—3s Prime farmland status: Prime farmland

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderate to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

BaaB—Bainter sandy loam, 1 to 4 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Bainter and similar soils—85 percent The somewhat poorly drained Brady and similar soils—5 percent

The excessively drained Bristol and similar soils— 5 percent

The moderately well drained Bronson and similar soils—5 percent

Interpretive Groups

Land capability classification: Bainter—3e Prime farmland status: Prime farmland

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderate to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

BaaC2—Bainter sandy loam, 4 to 10 percent slopes, eroded

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Bainter and similar soils—85 percent

The excessively drained Bristol and similar soils— 5 percent

The excessively drained Mishawaka and similar soils—5 percent

The well drained Oshtemo and similar soils— 5 percent

Interpretive Groups

Land capability classification: Bainter—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderate to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

BbmA—Baugo silt loam, 0 to 1 percent slopes

Setting

Landform: Lake plains and till plains Position on the landform: Backslopes

Map Unit Composition

The somewhat poorly drained Baugo and similar soils—85 percent

The somewhat poorly drained Brady and similar soils—5 percent

The somewhat poorly drained Del Rey and similar soils—5 percent

The poorly drained Rensselaer and similar soils— 5 percent

Interpretive Groups

Land capability classification: Baugo—2w
Prime farmland status: Prime farmland where drained

Properties and Qualities of the Baugo Soil

Parent material: Loamy over sandy outwash over loamy till

Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate to
rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: 50 to 60 inches to dense material

Available water capacity: About 6.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April)

Hydric soil status: Not hydric

Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

BmgA—Blount silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains

Position on the landform: Summits, shoulders, and backslopes

Map Unit Composition

The somewhat poorly drained Blount and similar soils—85 percent

The moderately well drained Glynwood and similar soils—6 percent

The poorly drained Pewamo and similar soils—4 percent The poorly drained Milford and similar soils—3 percent The moderately well drained Morley and similar soils—2 percent

Interpretive Groups

Land capability classification: Blount—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Blount Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: 30 to 50 inches to dense material

Available water capacity: About 8.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 0.5 foot (March, April)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Medium
Susceptibility to water erosion: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

BshA—Brady sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains and outwash terraces Position on the landform: Summits, shoulders, and backslopes

Map Unit Composition

The somewhat poorly drained Brady and similar soils—90 percent

The poorly drained Gilford and similar soils—4 percent The moderately well drained Brems and similar soils— 3 percent

The somewhat poorly drained Morocco and similar soils—3 percent

Interpretive Groups

Land capability classification: Brady—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Brady Soil

Parent material: Loamy outwash over sandy and gravelly outwash

Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderately rapid or rapid

Depth to restrictive feature: 40 to 70 inches to strongly contrasting textural stratification

Available water capacity: About 7.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

BsxA—Brems-Morocco loamy sands, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The moderately well drained Brems and similar soils—50 percent

The somewhat poorly drained Morocco and similar soils—40 percent

The somewhat poorly drained Brady and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Brems—4s; Morocco—4s Prime farmland status: Not prime farmland

Properties and Qualities of the Brems Soil

Parent material: Sandy outwash

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.3 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April, May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Properties and Qualities of the Morocco Soil

Parent material: Sandy outwash

Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

BteA—Brems loamy sand, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders, and backslopes

Map Unit Composition

The moderately well drained Brems and similar soils— 80 percent

The well drained Osolo and similar soils—8 percent The somewhat poorly drained Morocco and similar soils—7 percent

The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Brems—4s Prime farmland status: Not prime farmland

Properties and Qualities of the Brems Soil

Parent material: Sandy outwash

Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.3 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April, May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

BuuA—Brookston loam, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains and till

plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Brookston and similar soils—80 percent

The somewhat poorly drained Crosier and similar soils—8 percent

The poorly drained Rensselaer and similar soils— 8 percent

The poorly drained Goodell and similar soils—4 percent

Interpretive Groups

Land capability classification: Brookston—2w Prime farmland status: Prime farmland where drained

Properties and Qualities of the Brookston Soil

Parent material: Fine-loamy till

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderately

slow to moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.0 to 5.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): At the surface (April, May)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

CmbAl—Cohoctah loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains

Position on the landform: Shoulders, summits, and

backslopes

Map Unit Composition

The poorly drained Cohoctah and similar soils—75 percent

The poorly drained Suman and similar soils— 10 percent

The moderately well drained Abscota and similar soils—5 percent

The very poorly drained Adrian and similar soils— 5 percent

The somewhat poorly drained Ceresco and similar soils—5 percent

Interpretive Groups

Land capability classification: Cohoctah—4w
Prime farmland status: Prime farmland where
drained and either protected from flooding or
not frequently flooded during the growing
season

Properties and Qualities of the Cohoctah Soil

Parent material: Coarse-loamy alluvium

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately rapid

Permeability below a depth of 40 inches: Moderately rapid or rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.3 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 3.0 to 6.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April)

Frequency of flooding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

CnbA—Coloma sand, 0 to 2 percent slopes

Setting

Landform: Moraines and outwash plains
Position on the landform: Backslopes, summits, and shoulders

Map Unit Composition

The somewhat excessively drained Coloma and similar soils—85 percent

The excessively drained Bristol and similar soils— 5 percent

The well drained Osolo and similar soils—5 percent The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Coloma—4s Prime farmland status: Not prime farmland

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively drained Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

CnbB—Coloma sand, 2 to 5 percent slopes

Setting

Landform: Moraines and outwash plains
Position on the landform: Summits, shoulders, and backslopes

Map Unit Composition

The somewhat excessively drained Coloma and similar soils—85 percent

The excessively drained Bristol and similar soils—5 percent

The well drained Osolo and similar soils—5 percent The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Coloma—4s
Prime farmland status: Not prime farmland

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively drained Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

CnbC—Coloma sand, 5 to 10 percent slopes

Setting

Landform: Moraines and outwash plains Position on the landform: Backslopes

Map Unit Composition

The somewhat excessively drained Coloma and similar soils—85 percent

The excessively drained Bristol and similar soils— 10 percent

The excessively drained Tyner and similar soils— 4 percent

The well drained Osolo and similar soils—1 percent

Interpretive Groups

Land capability classification: Coloma—6s Prime farmland status: Not prime farmland

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively drained Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

CnbD—Coloma sand, 10 to 18 percent slopes

Setting

Landform: Moraines and outwash plains Position on the landform: Backslopes

Map Unit Composition

The somewhat excessively drained Coloma and similar soils—85 percent

The excessively drained Tyner and similar soils— 8 percent

The excessively drained Bristol and similar soils—7 percent

Interpretive Groups

Land capability classification: Coloma—6s Prime farmland status: Not prime farmland

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively drained Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

CrrA—Coupee silt loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Coupee and similar soils—85 percent The somewhat poorly drained Auten and similar soils—5 percent

The well drained Door and similar soils—5 percent The well drained Tracy and similar soils—5 percent

Interpretive Groups

Land capability classification: Coupee—2s
Prime farmland status: Prime farmland

Properties and Qualities of the Coupee Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Rapid

Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification

Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

CvdA—Crosier loam, 0 to 1 percent slopes

Setting

Landform: Till plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The somewhat poorly drained Crosier and similar soils—85 percent

The poorly drained Brookston and similar soils— 5 percent

The somewhat poorly drained Selfridge and similar soils—5 percent

The moderately well drained Williamstown and similar soils—3 percent

The somewhat poorly drained Baugo and similar soils—2 percent

Interpretive Groups

Land capability classification: Crosier—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow

Depth to restrictive feature: 24 to 40 inches to dense

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Medium Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

CvdB—Crosier loam, 1 to 4 percent slopes

Setting

Landform: Till plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The somewhat poorly drained Crosier and similar soils—80 percent

The poorly drained Brookston and similar soils— 10 percent

The somewhat poorly drained Selfridge and similar soils—5 percent

The well drained Riddles and similar soils—4 percent The somewhat poorly drained Baugo and similar soils—1 percent

Interpretive Groups

Land capability classification: Crosier—2e

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April) Hydric soil status: Not hydric

Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

CwkA—Crumstown fine sandy loam, 0 to 1 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Crumstown and similar soils—80 percent

The well drained Oshtemo and similar soils— 8 percent

The moderately well drained Bronson and similar soils—7 percent

The somewhat poorly drained Brady and similar soils—5 percent

Interpretive Groups

Land capability classification: Crumstown—3s Prime farmland status: Prime farmland

Properties and Qualities of the Crumstown Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 3.5 feet (January, February, March, April,

May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Very low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

CwkB—Crumstown fine sandy loam, 1 to 5 percent slopes

Setting

Landform: Ground moraines

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Crumstown and similar soils—80 percent

The well drained Oshtemo and similar soils— 8 percent

The moderately well drained Bronson and similar soils—7 percent

The somewhat poorly drained Brady and similar soils—5 percent

Interpretive Groups

Land capability classification: Crumstown—3e Prime farmland status: Prime farmland

Properties and Qualities of the Crumstown Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80

inches

Available water capacity: About 5.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 3.5 feet (January, February, March, April,

May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

DcrA—Del Rey silty clay loam, 0 to 1 percent slopes

Setting

Landform: Lake plains

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The somewhat poorly drained Del Rey and similar soils—85 percent

The somewhat poorly drained Baugo and similar soils—5 percent

The poorly drained Milford and similar soils—5 percent The somewhat poorly drained Whitaker and similar soils—5 percent

Interpretive Groups

Land capability classification: Del Rey—2w Prime farmland status: Prime farmland

Properties and Qualities of the Del Rey Soil

Parent material: Clayey lacustrine deposits Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate Permeability below a depth of 40 inches: Slow

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: High

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

EchAN—Edwards muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The very poorly drained Edwards, drained, and similar soils—80 percent

The very poorly drained Madaus and similar soils— 8 percent

The very poorly drained Houghton and similar soils—7 percent

The very poorly drained Adrian and similar soils— 5 percent

Interpretive Groups

Land capability classification: Edwards—4w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Edwards, Drained, Soil

Parent material: Herbaceous organic material over

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to

moderately rapid

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

EchAU—Edwards muck, undrained, 0 to 1 percent slopes

Settina

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Edwards, undrained, and similar soils—75 percent

The very poorly drained Madaus and similar soils— 8 percent

The very poorly drained Houghton and similar soils—7 percent

The very poorly drained Adrian and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Edwards—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Edwards, Undrained, Soil

Parent material: Herbaceous organic material over

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to

moderately rapid

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: More than 80 inches Available water capacity: About 9.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

EcrAN—Edselton muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Edselton, drained, and similar soils—70 percent

The very poorly drained Edwards and similar soils— 10 percent

The very poorly drained Madaus and similar soils— 10 percent

The very poorly drained Adrian and similar soils— 5 percent

The very poorly drained Houghton and similar soils— 5 percent

Interpretive Groups

Land capability classification: Edselton—4w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Edselton, Drained, Soil

Parent material: Herbaceous organic material over marl over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 9.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

EcrAU—Edselton muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions on lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Edselton, undrained, and similar soils—70 percent

The very poorly drained Madaus and similar soils— 10 percent

The very poorly drained Adrian and similar soils— 5 percent

The very poorly drained Edwards and similar soils— 5 percent

The very poorly drained Houghton and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Edselton—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Edselton, Undrained, Soil

Parent material: Herbaceous organic material over marl over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 9.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, September, October, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

EmeA—Elston sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The well drained Elston and similar soils—85 percent The well drained Bainter and similar soils—5 percent The excessively drained Mishawaka and similar soils—5 percent

The well drained Schoolcraft and similar soils— 5 percent

Interpretive Groups

Land capability classification: Elston—2s Prime farmland status: Prime farmland

Properties and Qualities of the Elston Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 2.0 to

4.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

GczA—Gilford sandy loam, 0 to 1 percent slopes

Setting

Landform: Depressions in drainageways and outwash

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The poorly drained Gilford and similar soils—75 percent

The poorly drained Sebewa and similar soils— 10 percent

The poorly drained Rensselaer and similar soils— 8 percent

The somewhat poorly drained Brady and similar soils—7 percent

Interpretive Groups

Land capability classification: Gilford—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Gilford Soil

Parent material: Coarse-loamy outwash over sandy outwash

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.1 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

GdnA—Gilford mucky sandy loam, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Gilford and similar soils—75 percent

The poorly drained Sebewa and similar soils— 10 percent

The poorly drained Rensselaer and similar soils— 8 percent

The very poorly drained Adrian and similar soils—7 percent

Interpretive Groups

Land capability classification: Gilford—2w
Prime farmland status: Prime farmland where drained

Properties and Qualities of the Gilford Soil

Parent material: Loamy over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.6 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 10.0 to 15.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March) Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

HfbAN—Henrietta muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Henrietta, drained, and similar soils—80 percent

The very poorly drained Adrian and similar soils— 5 percent

The very poorly drained Antung and similar soils—5 percent

The very poorly drained Madaus and similar soils— 5 percent

The very poorly drained Palms and similar soils— 5 percent

Interpretive Groups

Land capability classification: Henrietta—2w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Henrietta, Drained, Soil

Parent material: Herbaceous organic material over loamy and/or sandy drift

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches

Available water capacity: About 12.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

HfbAU—Henrietta muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Henrietta, undrained, and similar soils—75 percent

The very poorly drained Adrian and similar soils— 5 percent

The very poorly drained Antung and similar soils—5 percent

The very poorly drained Madaus and similar soils— 5 percent

The very poorly drained Palms and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Henrietta—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Henrietta, Undrained, Soil

Parent material: Herbaceous organic material over loamy and/or sandy drift

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 12.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

HkkA—Hillsdale sandy loam, 0 to 1 percent slopes

Setting

Landform: End moraines

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—80 percent The well drained Oshtemo and similar soils— 10 percent

The well drained Riddles and similar soils—5 percent The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Hillsdale—2e Prime farmland status: Prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

HkkB—Hillsdale sandy loam, 1 to 5 percent slopes

Setting

Landform: End moraines

Position on the landform: Summits, shoulders, and

backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—80 percent The well drained Oshtemo and similar soils—

10 percent

The well drained Riddles and similar soils—5 percent The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Hillsdale—2s Prime farmland status: Prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

HknC2—Hillsdale-Oshtemo sandy loams, 5 to 10 percent slopes, eroded

Setting

Landform: End moraines

Position on the landform: Backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—55 percent The well drained Oshtemo and similar soils—30 percent The excessively drained Tyner and similar soils— 8 percent

The well drained Riddles and similar soils—7 percent

Interpretive Groups

Land capability classification: Hillsdale—3e;

Oshtemo-3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

HknD2—Hillsdale-Oshtemo sandy loams, 10 to 18 percent slopes, eroded

Setting

Landform: End moraines

Position on the landform: Backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—55 percent The well drained Oshtemo and similar soils—30 percent The excessively drained Tyner and similar soils— 8 percent

The well drained Riddles and similar soils—7 percent

Interpretive Groups

Land capability classification: Hillsdale—4e;

Oshtemo-4e

Prime farmland status: Not prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 7.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

HkpC2—Hillsdale-Tracy sandy loams, 5 to 10 percent slopes, eroded

Setting

Landform: End moraines

Position on the landform: Backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—55 percent The well drained Tracy and similar soils—30 percent The excessively drained Tyner and similar soils— 8 percent

The well drained Riddles and similar soils—7 percent

Interpretive Groups

Land capability classification: Hillsdale—3e; Tracy—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

HkpD2—Hillsdale-Tracy sandy loams, 10 to 18 percent slopes, eroded

Setting

Landform: End moraines

Position on the landform: Backslopes

Map Unit Composition

The well drained Hillsdale and similar soils—55 percent The well drained Tracy and similar soils—30 percent The excessively drained Tyner and similar soils— 8 percent

The well drained Riddles and similar soils—7 percent

Interpretive Groups

Land capability classification: Hillsdale—4e; Tracy—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to

rapic

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Medium Susceptibility to water erosion: High

Susceptibility to wind erosion: Moderately high

HtbAN—Houghton muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The very poorly drained Houghton, drained, and similar soils—75 percent

The very poorly drained Adrian and similar soils—7 percent

The very poorly drained Edwards and similar soils—7 percent

The very poorly drained Muskego and similar soils— 6 percent

The very poorly drained Palms and similar soils— 5 percent

Interpretive Groups

Land capability classification: Houghton—3w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Houghton, Drained, Soil

Parent material: Herbaceous organic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderately slow to moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 23.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Not rated

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

HtbAU—Houghton muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Houghton, undrained, and similar soils—75 percent

The very poorly drained Adrian and similar soils— 5 percent The very poorly drained Edwards and similar soils— 5 percent

The very poorly drained Muskego and similar soils— 5 percent

The very poorly drained Palms and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Houghton—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Houghton, Undrained, Soil

Parent material: Herbaceous organic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderately slow to moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 23.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Not rated

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, July, August, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

JaaAK—Jamestown silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

Position on the landform: Footslopes

Map Unit Composition

The somewhat poorly drained Jamestown and similar soils—80 percent

The somewhat poorly drained Waterford and similar soils—10 percent

The poorly drained Brookston and similar soils— 5 percent

The poorly drained Southwest and similar soils— 5 percent

Interpretive Groups

Land capability classification: Jamestown—2w Prime farmland status: Prime farmland where drained

Properties and Qualities of the Jamestown Soil

Parent material: Loamy alluvium over loamy basal till

Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

rapid

Depth to restrictive feature: 42 to 70 inches to dense material

material

Available water capacity: About 9.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Perched seasonal high water table is highest (depth,

months): 0.5 foot (April, May, June)

Frequency of flooding: Occasional (January, February, March, April, May, June, July, August, September,

October, November, December)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

MfaA—Martinsville loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains and till plains

Position on the landform: Shoulders, backslopes, and

summits

Map Unit Composition

The well drained Martinsville and similar soils—70 percent

The well drained Crumstown and similar soils— 10 percent

The well drained Oshtemo and similar soils— 10 percent

The well drained Riddles and similar soils—10 percent

Interpretive Groups

Land capability classification: Martinsville—1 Prime farmland status: Prime farmland

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

MfaB2—Martinsville loam, 1 to 5 percent slopes, eroded

Setting

Landform: Outwash plains and till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Martinsville and similar soils—70 percent

The well drained Crumstown and similar soils— 10 percent

The well drained Oshtemo and similar soils— 10 percent

The well drained Riddles and similar soils—10 percent

Interpretive Groups

Land capability classification: Martinsville—2e Prime farmland status: Prime farmland

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hvdric soil status: Not hvdric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

MfaC2—Martinsville loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash plains and till plains Position on the landform: Backslopes

Map Unit Composition

The well drained Martinsville and similar soils— 80 percent

The well drained Oshtemo and similar soils—10 percent The well drained Riddles and similar soils—10 percent

Interpretive Groups

Land capability classification: Martinsville—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate Hazard of corrosion: Moderate for steel and moderate for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

MfrAN—Madaus muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains,

and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The very poorly drained Madaus, drained, and similar soils—80 percent

The very poorly drained Edselton and similar soils— 10 percent

The very poorly drained Moston and similar soils— 10 percent

Interpretive Groups

Land capability classification: Madaus—4w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Madaus, Drained, Soil

Parent material: Herbaceous organic material over marl over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to

moderately rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric

Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MfrAU—Madaus muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Madaus, undrained, and similar soils—75 percent

The very poorly drained Edselton and similar soils— 10 percent

The very poorly drained Moston and similar soils— 10 percent

Water—5 percent

Interpretive Groups

Land capability classification: Madaus—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Madaus, Undrained, Soil

Parent material: Herbaceous organic material over marl over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to

moderately rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, September, October, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MgcA—Maumee loamy sand, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains and outwash

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Maumee and similar soils— 80 percent

The poorly drained Granby and similar soils—10 percent The poorly drained Gilford and similar soils—7 percent The somewhat poorly drained Morocco and similar soils—3 percent

Interpretive Groups

Land capability classification: Maumee—3w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Maumee Soil

Parent material: Sandy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 0.5 foot (January, February, March,

October, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MgdAN—Martisco muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Martisco, drained, and similar soils—75 percent

The very poorly drained Edselton and similar soils— 10 percent

The very poorly drained Madaus and similar soils— 10 percent

The very poorly drained Moston and similar soils— 5 percent

Interpretive Groups

Land capability classification: Martisco—4w Prime farmland status: Not prime farmland

Properties and Qualities of the Martisco, Drained, Soil

Parent material: Herbaceous organic material over

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: More than 80 inches Available water capacity: About 4.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MhaA—Maumee loamy fine sand, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains
Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Maumee and similar soils—80 percent

The poorly drained Gilford and similar soils—5 percent The poorly drained Gumz and similar soils—5 percent The somewhat poorly drained Morocco and similar soils—5 percent

The poorly drained Newton and similar soils— 5 percent

Interpretive Groups

Land capability classification: Maumee—3w

Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Maumee Soil

Parent material: Sandy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MhbA—Maumee mucky loamy fine sand, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The very poorly drained Maumee and similar soils— 90 percent

The poorly drained Gilford and similar soils—5 percent The poorly drained Granby and similar soils— 5 percent

Interpretive Groups

Land capability classification: Maumee—3w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Maumee Soil

Parent material: Sandy outwash Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.5 inches to a depth

Content of organic matter in the surface layer: 10.0 to 20.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February,

March, April, May, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MmbC2—Miami loam, 5 to 10 percent slopes, eroded

Setting

Landform: Moraines

Position on the landform: Backslopes and shoulders

Map Unit Composition

The moderately well drained Miami and similar soils—80 percent

The well drained Riddles and similar soils—10 percent The well drained Metea and similar soils—5 percent The moderately well drained Williamstown and similar soils—5 percent

Interpretive Groups

Land capability classification: Miami—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Loamy till over loamy basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or

Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April,

May, June, November)

Hydric soil status: Not hydric

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: High

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

MmdC3—Miami clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Moraines

Position on the landform: Shoulders and backslopes

Map Unit Composition

The moderately well drained Miami and similar soils—80 percent

The well drained Riddles and similar soils—10 percent The well drained Metea and similar soils—5 percent The moderately well drained Williamstown and similar soils—5 percent

Interpretive Groups

Land capability classification: Miami—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Loamy till over loamy basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 5.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April, May, June, November)

Hydric soil status: Not hydric

Accelerated erosion: Surface layer is mostly subsoil material.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: High

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

MmdD3—Miami clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Moraines

Position on the landform: Backslopes

Map Unit Composition

The moderately well drained Miami and similar soils—80 percent

The well drained Riddles and similar soils—10 percent The well drained Metea and similar soils—5 percent The moderately well drained Williamstown and similar soils—5 percent

Interpretive Groups

Land capability classification: Miami—6e Prime farmland status: Not prime farmland

Properties and Qualities of the Miami Soil

Parent material: Loamy till over loamy basal till

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 5.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April, May, June, November)

Hydric soil status: Not hydric

Accelerated erosion: Surface layer is mostly subsoil

material.

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: High

Susceptibility to water erosion: High Susceptibility to wind erosion: Low

MouA—Milford silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Milford and similar soils—85 percent

The poorly drained Radioville and similar soils— 5 percent

The poorly drained Rensselaer and similar soils— 5 percent

The poorly drained Whitepost and similar soils— 5 percent

Interpretive Groups

Land capability classification: Milford—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Milford Soil

Parent material: Clayey lacustrine deposits

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately slow

or moderate

Permeability below a depth of 40 inches: Moderately

slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, July, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

MsaA—Mishawaka sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The excessively drained Mishawaka and similar soils—95 percent

The well drained Elston and similar soils—5 percent

Interpretive Groups

Land capability classification: Mishawaka—3s Prime farmland status: Prime farmland

Properties and Qualities of the Mishawaka Soil

Parent material: Sandy outwash Drainage class: Excessively drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.0 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

MtsB2—Morley silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Moraines and till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The moderately well drained Morley and similar soils— 75 percent

The well drained Riddles and similar soils—10 percent The moderately well drained Glynwood and similar soils—8 percent

The somewhat poorly drained Blount and similar soils—7 percent

Interpretive Groups

Land capability classification: Morley—2e

Prime farmland status: Prime farmland

Properties and Qualities of the Morley Soil

Parent material: Clayey till over clayey basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to

moderate

Permeability below a depth of 40 inches: Very slow or

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 4.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: High

Perched seasonal high water table is highest (depth, months): 1.0 foot (January, February, March, April,

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

MtsC2—Morley silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Moraines and till plains Position on the landform: Backslopes

Map Unit Composition

The moderately well drained Morley and similar soils— 80 percent

The well drained Riddles and similar soils—10 percent The moderately well drained Glynwood and similar soils—5 percent

The well drained Oshtemo and similar soils—5 percent

Interpretive Groups

Land capability classification: Morley—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Morley Soil

Parent material: Clayey till over clayey basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to

moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 4.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: High

Perched seasonal high water table is highest (depth, months): 1.0 foot (January, February, March, April,

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: High

Susceptibility to water erosion: High Susceptibility to wind erosion: Low

MubD3—Morley silty clay loam, 12 to 18 percent slopes, severely eroded

Setting

Landform: Moraines and till plains Position on the landform: Backslopes

Map Unit Composition

The moderately well drained Morley and similar soils— 80 percent

The well drained Riddles and similar soils—10 percent The moderately well drained Glynwood and similar soils—5 percent

The well drained Oshtemo and similar soils—5 percent

Interpretive Groups

Land capability classification: Morley—6e Prime farmland status: Not prime farmland

Properties and Qualities of the Morley Soil

Parent material: Clayey till over clayey basal till

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderately slow

Permeability below a depth of 40 inches: Very slow or

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 4.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: High

Perched seasonal high water table is highest (depth, months): 1.0 foot (January, February, March, April, May)

Hydric soil status: Not hydric

Accelerated erosion: Surface layer is mostly subsoil

material.

Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: High

Susceptibility to water erosion: High Susceptibility to wind erosion: Low

MvhAN—Moston muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Moston, drained, and similar soils—80 percent

The very poorly drained Ackerman and similar soils— 10 percent

The very poorly drained Muskego and similar soils— 5 percent

The very poorly drained Toto and similar soils— 5 percent

Interpretive Groups

Land capability classification: Moston—4w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Moston, Drained, Soil

Parent material: Herbaceous organic material over coprogenic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 15.2 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MvhAU—Moston muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains,

and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Moston, undrained, and similar soils—75 percent

The very poorly drained Ackerman and similar soils— 10 percent

The very poorly drained Muskego and similar soils— 5 percent

The very poorly drained Toto and similar soils—5 percent Water—5 percent

Interpretive Groups

Land capability classification: Moston—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Moston, Undrained, Soil

Parent material: Herbaceous organic material over coprogenic material over sandy outwash

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow to rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 15.2 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, September, October, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MvkA—Morocco loamy sand, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The somewhat poorly drained Morocco and similar soils—85 percent

The poorly drained Gilford and similar soils— 5 percent

The poorly drained Maumee and similar soils— 5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Morocco—3s Prime farmland status: Not prime farmland

Properties and Qualities of the Morocco Soil

Parent material: Sandy outwash

Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80

inches

Available water capacity: About 5.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 0.5 foot (April)

Hydric soil status: Not hydric
Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MwzAN—Muskego muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Muskego, drained, and similar soils—75 percent

The very poorly drained Houghton and similar soils— 10 percent

The very poorly drained Moston and similar soils— 10 percent

The very poorly drained Palms and similar soils— 5 percent

Interpretive Groups

Land capability classification: Muskego—4w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Muskego, Drained, Soil

Parent material: Herbaceous organic material over coprogenic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to

moderately rapid

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: More than 80 inches

Available water capacity: About 17.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

MwzAU—Muskego muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains, and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Muskego, undrained, and similar soils—70 percent

The very poorly drained Houghton and similar soils— 10 percent

The very poorly drained Moston and similar soils— 10 percent

The very poorly drained Palms and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Muskego—6w Prime farmland status: Not prime farmland

Properties and Qualities of the Muskego, Undrained, Soil

Parent material: Herbaceous organic material over coprogenic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Slow to moderately rapid

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: More than 80 inches Available water capacity: About 17.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

OkrA—Oshtemo fine sandy loam, 0 to 1 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Summits, backslopes, and

shoulders

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent
The well drained Hillsdale and similar soils—7 percent
The excessively drained Tyner and similar soils—
7 percent

The well drained Riddles and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3s Prime farmland status: Prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

OkrB—Oshtemo fine sandy loam, 1 to 5 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Oshtemo and similar soils— 80 percent

The well drained Hillsdale and similar soils—7 percent

The excessively drained Tyner and similar soils—7 percent

The well drained Riddles and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3e Prime farmland status: Prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

OkrC2—Oshtemo fine sandy loam, 5 to 10 percent slopes, eroded

Setting

Landform: Moraines and till plains
Position on the landform: Backslopes

Map Unit Composition

The well drained Oshtemo and similar soils— 80 percent

The well drained Hillsdale and similar soils—7 percent

The excessively drained Tyner and similar soils—7 percent

The well drained Riddles and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

OkrD—Oshtemo fine sandy loam, 10 to 18 percent slopes

Setting

Landform: Moraines and till plains Position on the landform: Backslopes

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent
The well drained Hillsdale and similar soils—7 percent
The excessively drained Tyner and similar soils—
7 percent

The well drained Riddles and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

OlcA—Oshtemo sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent The moderately well drained Bronson and similar soils—7 percent

The excessively drained Tyner and similar soils— 7 percent

The well drained Elston and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3s Prime farmland status: Prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

OlcB—Oshtemo sandy loam, 1 to 5 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent The excessively drained Tyner and similar soils— 8 percent

The somewhat excessively drained Coloma and similar soils—6 percent

The well drained Tracy and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3s Prime farmland status: Prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

OlcC2—Oshtemo sandy loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent The excessively drained Tyner and similar soils— 8 percent

The somewhat excessively drained Coloma and similar soils—6 percent

The well drained Tracy and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

OlcD—Oshtemo sandy loam, 10 to 18 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Oshtemo and similar soils—80 percent
The excessively drained Tyner and similar soils—
8 percent

The somewhat excessively drained Coloma and similar soils—6 percent

The well drained Tracy and similar soils—6 percent

Interpretive Groups

Land capability classification: Oshtemo—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

OmgA—Osolo loamy sand, 0 to 1 percent slopes

Setting

Landform: Outwash plains and outwash terraces Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The well drained Osolo and similar soils—85 percent The moderately well drained Brems and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—5 percent

The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Osolo—3s Prime farmland status: Not prime farmland

Properties and Qualities of the Osolo Soil

Parent material: Sandy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 3.5 feet (January, February, March, April, May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

PaaAN—Palms muck, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains,

and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Palms, drained, and similar soils—80 percent

The very poorly drained Adrian and similar soils— 10 percent

The very poorly drained Houghton and similar soils— 5 percent

The very poorly drained Muskego and similar soils— 5 percent

Interpretive Groups

Land capability classification: Palms—3w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Palms, Drained, Soil

Parent material: Herbaceous organic material over loamy glaciofluvial deposits

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow

to moderately rapid

Permeability below a depth of 40 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 18.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 40.0 to 90.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (April, May, June)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

PaaAU—Palms muck, undrained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains, outwash plains,

and till plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

The very poorly drained Palms, undrained, and similar soils—75 percent

The very poorly drained Adrian and similar soils— 10 percent

The very poorly drained Houghton and similar soils— 5 percent

The very poorly drained Muskego and similar soils— 5 percent

Water—5 percent

Interpretive Groups

Land capability classification: Palms—3w Prime farmland status: Not prime farmland

Properties and Qualities of the Palms, Undrained, Soil

Parent material: Herbaceous organic material over loamy glaciofluvial deposits

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow

to moderately rapid

Permeability below a depth of 40 inches: Moderately

slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 18.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 40.0 to

90.0 percent Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, December)

Frequency of ponding: Frequent (January, February, March, April, May, June, July, August, October, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Pmg—Pits, gravel

Setting

Landform: Outwash plains and till plains

Areas of Pits, gravel, are excavations and filled-in areas. Because of the extreme variability in the material in these areas, no typical soil series is representative of these areas. Generally, these areas consist of mixed gravel and sandy materials. These are areas where various thicknesses of soil material have been removed. Included are areas of associated loamy materials.

Map Unit Composition

Pits, gravel—100 percent

Interpretive Groups

Land capability classification: Pits, gravel—None assigned

Prime farmland status: Not prime farmland

Properties and Qualities of Pits, Gravel

Hydric soil status: Unranked

PxIA—Psammaquents

Setting

Landform: Outwash plains

Areas of Psammaquents are excavations and filled-in areas. Because of the extreme variability in the soils in these areas, no typical soil series is representative of these soils. Generally, these areas consist of wet, mixed, sandy materials. These are areas where various thicknesses of soil material have been removed near highway interchanges.

Map Unit Composition

The somewhat poorly drained Psammaquents and similar soils—85 percent

The excessively drained Psamments and similar soils—15 percent

Interpretive Groups

Land capability classification: Psammaquents—8
Prime farmland status: Not prime farmland

Properties and Qualities of the Psammaquents Soil

Drainage class: Somewhat poorly drained

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April, May) Hydric soil status: Unranked Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low

Pxo—Psamments

Setting

Landform: Outwash plains

Areas of Psamments are excavations and filled-in areas. Because of the extreme variability in the soils in these areas, no typical soil series is representative of these soils. Generally, these areas consist of mixed, sandy soil material. These are areas where various thicknesses of soil material have been removed. Included are areas of associated loamy materials.

Map Unit Composition

The excessively drained Psamments and similar soils—85 percent

The somewhat poorly drained Psammaquents and similar soils—15 percent

Interpretive Groups

Land capability classification: Psamments—8 Prime farmland status: Not prime farmland

Properties and Qualities of the Psamments Soil

Drainage class: Excessively drained

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Unranked Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low

QuiA—Quinn loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Quinn and similar soils—80 percent

The somewhat poorly drained Auten and similar soils—10 percent

The somewhat poorly drained Brady and similar soils—5 percent

The poorly drained Gilford and similar soils—5 percent

Interpretive Groups

Land capability classification: Quinn—2w Prime farmland status: Prime farmland where drained

Properties and Qualities of the Quinn Soil

Parent material: Loamy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Perched seasonal high water table is highest (depth, months): At the surface (January, February, March)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

QujA—Quinn sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Quinn and similar soils—75 percent

The somewhat poorly drained Brady and similar soils—10 percent

The somewhat poorly drained Morocco and similar soils—10 percent

The poorly drained Newton and similar soils— 5 percent

Interpretive Groups

Land capability classification: Quinn—2w

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Quinn Soil

Parent material: Loamy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Perched seasonal high water table is highest (depth, months): At the surface (January, February, March)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

RenA—Rensselaer mucky loam, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Rensselaer and similar soils—85 percent

The poorly drained Brookston and similar soils— 5 percent

The very poorly drained Gilford and similar soils— 5 percent

The poorly drained Goodell and similar soils— 3 percent

The very poorly drained Palms and similar soils— 2 percent

Interpretive Groups

Land capability classification: Rensselaer—2w
Prime farmland status: Prime farmland where drained

Properties and Qualities of the Rensselaer Soil

Parent material: Fine-loamy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Slow to moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 10.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 10.0 to 20.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): At the surface (April, May)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

ReyA—Rensselaer loam, 0 to 1 percent slopes

Setting

Landform: Depressions in outwash plains and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Rensselaer and similar soils—75 percent

The poorly drained Brookston and similar soils— 10 percent

The poorly drained Goodell and similar soils—10 percent The somewhat poorly drained Whitaker and similar soils—5 percent

Interpretive Groups

Land capability classification: Rensselaer—2w Prime farmland status: Prime farmland where drained

Properties and Qualities of the Rensselaer Soil

Parent material: Fine-loamy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Slow to

moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 3.0 to 6.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): At the surface (April, May)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

RopA—Riddles-Oshtemo fine sandy loams, 0 to 1 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Summits, backslopes, and

shoulders

Map Unit Composition

The well drained Riddles and similar soils—50 percent The well drained Oshtemo and similar soils—35 percent The well drained Metea and similar soils—5 percent The excessively drained Tyner and similar soils—

5 percent

The moderately well drained Williamstown and similar soils—3 percent
The well drained Crumstown and similar soils—

2 percent

Interpretive Groups

Land capability classification: Riddles—1; Oshtemo—3s

Prime farmland status: Prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a dep

Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Hydric

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

RopB—Riddles-Oshtemo fine sandy loams, 1 to 5 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Riddles and similar soils—50 percent The well drained Oshtemo and similar soils—35 percent The well drained Metea and similar soils—5 percent

The excessively drained Tyner and similar soils— 5 percent

The moderately well drained Williamstown and similar soils—3 percent

The well drained Crumstown and similar soils— 2 percent

Interpretive Groups

Land capability classification: Riddles—2e;

Oshtemo—3e

Prime farmland status: Prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

RopC2—Riddles-Oshtemo fine sandy loams, 5 to 10 percent slopes, eroded

Setting

Landform: Moraines and till plains
Position on the landform: Backslopes

Map Unit Composition

The well drained Riddles and similar soils—50 percent The well drained Oshtemo and similar soils—35 percent The well drained Metea and similar soils—5 percent The excessively drained Tyner and similar soils—5 percent

The moderately well drained Miami and similar soils— 5 percent

Interpretive Groups

Land capability classification: Riddles—3e;

Oshtemo-3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy

outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric

Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

RopD2—Riddles-Oshtemo fine sandy loams, 10 to 18 percent slopes, eroded

Setting

Landform: Moraines and till plains
Position on the landform: Backslopes

Map Unit Composition

The well drained Riddles and similar soils—50 percent
The well drained Oshtemo and similar soils—35 percent
The well drained Metea and similar soils—5 percent
The excessively drained Tyner and similar soils—
5 percent

The moderately well drained Miami and similar soils— 5 percent

Interpretive Groups

Land capability classification: Riddles—4e;

Oshtemo-4s

Prime farmland status: Not prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium Susceptibility to water erosion: High

Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink arrall not antick

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

RoqB—Riddles-Metea complex, 1 to 5 percent slopes

Setting

Landform: Till plains

Position on the landform: Shoulders and backslopes

Map Unit Composition

The well drained Riddles and similar soils—55 percent
The well drained Metea and similar soils—30 percent
The well drained Ormas and similar soils—5 percent
The well drained Oshtemo and similar soils—
5 percent

The moderately well drained Williamstown and similar soils—5 percent

Interpretive Groups

Land capability classification: Riddles—3e; Metea—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.2 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

RoqC2—Riddles-Metea complex, 5 to 10 percent slopes, eroded

Setting

Landform: Till plains

Position on the landform: Shoulders and backslopes

Map Unit Composition

The well drained Riddles and similar soils—55 percent
The well drained Metea and similar soils—30 percent
The well drained Ormas and similar soils—5 percent
The well drained Oshtemo and similar soils—
5 percent

The moderately well drained Williamstown and similar soils—5 percent

Interpretive Groups

Land capability classification: Riddles—3e; Metea—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

RoqD2—Riddles-Metea complex, 10 to 18 percent slopes, eroded

Setting

Landform: Till plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Riddles and similar soils—50 percent The well drained Metea and similar soils—30 percent The moderately well drained Miami and similar soils— 10 percent

The well drained Oshtemo and similar soils— 5 percent

The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Riddles—4e; Metea—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 9.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate for concrete

Surface runoff class: Medium Susceptibility to water erosion: High Susceptibility to wind erosion: Low

Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low Susceptibility to water erosion: Moderate

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

SdzA—Selfridge-Crosier complex, 0 to 1 percent slopes

Setting

Landform: Till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The somewhat poorly drained Selfridge and similar soils—50 percent

The somewhat poorly drained Crosier and similar soils—35 percent

The somewhat poorly drained Brady and similar soils—5 percent

The poorly drained Brookston and similar soils— 5 percent

The somewhat poorly drained Morocco and similar soils—5 percent

Interpretive Groups

Land capability classification: Selfridge—3w; Crosier—2w

Prime farmland status: Prime farmland

Properties and Qualities of the Selfridge Soil

Parent material: Loamy outwash over sandy outwash

Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderately slow to rapid

Permeability below a depth of 40 inches: Moderately slow

Depth to restrictive feature: More than 80 inches Available water capacity: About 6.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 1.0 foot (March, April)
Hydric soil status: Not hydric
Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April)
Hydric soil status: Not hydric
Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Medium Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

SdzaB—Selfridge-Brems loamy sands, 1 to 4 percent slopes

Setting

Landform: Till plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The somewhat poorly drained Selfridge and similar soils—50 percent

The moderately well drained Brems and similar soils—35 percent

The somewhat poorly drained Crosier and similar soils—5 percent

The moderately well drained Moon and similar soils— 5 percent

The somewhat poorly drained Morocco and similar soils—5 percent

Interpretive Groups

Land capability classification: Selfridge—3e;
Brems—4s

Prime farmland status: Not prime farmland

Properties and Qualities of the Selfridge Soil

Parent material: Loamy outwash over sandy outwash Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Moderately slow to rapid

Permeability below a depth of 40 inches: Moderately slow

Depth to restrictive feature: More than 80 inches Available water capacity: About 6.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 1.0 foot (March, April)

Hydric soil status: Not hydric

Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Properties and Qualities of the Brems Soil

Parent material: Sandy outwash

Drainage class: Moderately well drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.3 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April, May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

SesA—Schoolcraft loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The well drained Schoolcraft and similar soils—80 percent

The well drained Volinia and similar soils—8 percent

The well drained Bainter and similar soils—7 percent The well drained Elston and similar soils—5 percent

Interpretive Groups

Land capability classification: Schoolcraft—2s Prime farmland status: Prime farmland

Properties and Qualities of the Schoolcraft Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 7.9 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

SnIA—Southwest silt loam, 0 to 1 percent slopes

Setting

Landform: Depressions on till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

The poorly drained Southwest and similar soils—75 percent

The poorly drained Brookston and similar soils—10 percent The poorly drained Washtenaw and similar soils— 10 percent

The very poorly drained Wunabuna and similar soils— 5 percent

Interpretive Groups

Land capability classification: Southwest—2w Prime farmland status: Prime farmland where drained

Properties and Qualities of the Southwest Soil

Parent material: Fine-silty alluvium over fine-silty glaciofluvial deposits

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately slow

or moderate

Permeability below a depth of 40 inches: Moderately

slow

Depth to restrictive feature: More than 80 inches Available water capacity: About 12.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): At the surface (April, May)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

TmpA—Tracy sandy loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Tracy and similar soils—80 percent
The well drained Oshtemo and similar soils—8 percent
The well drained Coupee and similar soils—7 percent
The somewhat poorly drained Auten and similar
soils—5 percent

Interpretive Groups

Land capability classification: Tracy—2s Prime farmland status: Prime farmland

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to

rapic

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

TmpB—Tracy sandy loam, 1 to 5 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The well drained Tracy and similar soils—80 percent The well drained Oshtemo and similar soils—

10 percent

The well drained Coupee and similar soils—

5 percent

The well drained Kalamazoo and similar soils—

5 percent

Interpretive Groups

Land capability classification: Tracy—2e Prime farmland status: Prime farmland

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

TmpC2—Tracy sandy loam, 5 to 10 percent slopes, eroded

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Tracy and similar soils—80 percent

The well drained Oshtemo and similar soils—

10 percent

The well drained Kalamazoo and similar soils—

5 percent

The excessively drained Tyner and similar soils—

5 percent

Interpretive Groups

Land capability classification: Tracy—3e
Prime farmland status: Not prime farmland

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate

Susceptibility to wind erosion: Moderately high

TmpD—Tracy sandy loam, 10 to 18 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The well drained Tracy and similar soils—80 percent The well drained Oshtemo and similar soils—10 percent

The well drained Spinks and similar soils—5 percent The excessively drained Tyner and similar soils— 5 percent

Interpretive Groups

Land capability classification: Tracy—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Medium Susceptibility to water erosion: High

Susceptibility to wind erosion: Moderately high

TnwA—Troxel silt loam, 0 to 1 percent slopes

Setting

Landform: Outwash plains, stream terraces, and till

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The well drained Troxel and similar soils—80 percent The well drained Elston and similar soils—10 percent The well drained Coupee and similar soils—5 percent The well drained Tracy and similar soils—5 percent

Interpretive Groups

Land capability classification: Troxel—1 Prime farmland status: Prime farmland

Properties and Qualities of the Troxel Soil

Parent material: Silty colluvium over loamy drift

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 13.3 inches to a depth

Content of organic matter in the surface layer: 3.0 to 5.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

TxuA—Tyner loamy sand, 0 to 1 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The excessively drained Tyner and similar soils—85 percent

The excessively drained Bristol and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Tyner—3s Prime farmland status: Not prime farmland

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash Drainage class: Excessively drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

TxuB—Tyner loamy sand, 1 to 5 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The excessively drained Tyner and similar soils—85 percent

The excessively drained Bristol and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Tyner—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to

1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

TxuC—Tyner loamy sand, 5 to 10 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Shoulders and backslopes

Map Unit Composition

The excessively drained Tyner and similar soils— 85 percent

The excessively drained Bristol and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Tyner—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to

1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

TxuD—Tyner loamy sand, 10 to 18 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The excessively drained Tyner and similar soils—85 percent

The excessively drained Bristol and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Tyner—4e
Prime farmland status: Not prime farmland

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash Drainage class: Excessively drained

Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to

1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

TxuF—Tyner loamy sand, 18 to 45 percent slopes

Setting

Landform: Outwash plains

Position on the landform: Backslopes

Map Unit Composition

The excessively drained Tyner and similar soils— 80 percent

The excessively drained Bristol and similar soils—

The somewhat excessively drained Coloma and similar soils—8 percent

The well drained Osolo and similar soils—4 percent

Interpretive Groups

Land capability classification: Tyner—6e Prime farmland status: Not prime farmland

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to

1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: High Susceptibility to wind erosion: High

Uam—Udorthents, loamy

Setting

Landform: Moraines and till plains

Because of the extreme variability of these soils, no typical soil series is representative of these soils. Generally, they consist of areas of mixed, loamy soil materials of areas that have been borrowed from for fill materials or the fill material itself.

Map Unit Composition

The well drained Udorthents, loamy, and similar soils—100 percent

Interpretive Groups

Land capability classification: Udorthents, loamy—8 Prime farmland status: Not prime farmland

Properties and Qualities of the Udorthents, Loamy, Soil

Drainage class: Well drained

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Unranked Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: High

Susceptibility to water erosion: Low

UdeA—Urban land-Bainter complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The well drained Bainter and similar soils—40 percent The excessively drained Bristol and similar soils— 4 percent

The somewhat poorly drained Brady and similar soils—3 percent

The moderately well drained Bronson and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Bainter—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures (fig. 2).

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately

rapid

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80

inches

Available water capacity: About 7.2 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

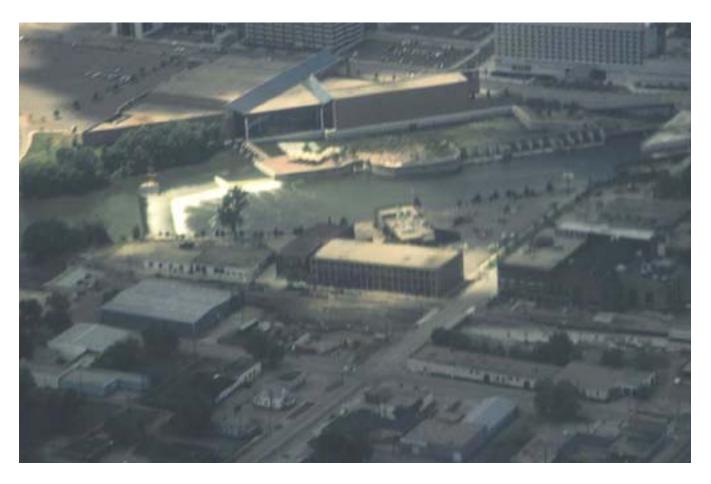


Figure 2.—Aerial photo of the South Bend downtown area. Many of the soils in this area are urban land complex units.

UdeB—Urban land-Bainter complex, 1 to 4 percent slopes

Setting

Landform: Urban land on outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The well drained Bainter and similar soils—40 percent The excessively drained Bristol and similar soils—

4 percent

The somewhat poorly drained Brady and similar

soils—3 percent

The moderately well drained Bronson and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Bainter—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.2 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UdeC—Urban land-Bainter complex, 4 to 10 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Bainter and similar soils—40 percent

The well drained Oshtemo and similar soils—

4 percent

The excessively drained Bristol and similar soils—

3 percent

The excessively drained Mishawaka and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Bainter—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Bainter Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately

rapio

Permeability below a depth of 40 inches: Moderate to

rapio

Depth to restrictive feature: More than 80 inches

Available water capacity: About 7.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Moderately high

UdkA—Urban land-Brady complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains and outwash

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The somewhat poorly drained Brady and similar soils—40 percent

The poorly drained Gilford and similar soils—4 percent The moderately well drained Brems and similar soils— 3 percent

The somewhat poorly drained Morocco and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Brady—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Brady Soil

Parent material: Loamy outwash over sandy and gravelly outwash

Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderately rapid or rapid

Depth to restrictive feature: 40 to 70 inches to strongly contrasting textural stratification

Available water capacity: About 7.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UdzA—Urban land-Auten complex, 0 to 1 percent slopes

Setting

Landform: Urban land on moraines, outwash plains, and terraces

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The somewhat poorly drained Auten and similar soils—40 percent

The somewhat poorly drained Brady and similar soils—4 percent

The poorly drained Quinn and similar soils— 3 percent

The poorly drained Rensselaer and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Auten—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Auten Soil

Parent material: Loamy and/or outwash sandy Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Moderate to rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: 20 to 35 inches to strongly
contrasting textural stratification

Available water capacity: About 6.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): 0.5 foot (April)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UeaA—Urban land-Crosier complex, 0 to 3 percent slopes

Setting

Landform: Urban land on till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The somewhat poorly drained Crosier and similar soils—40 percent

The poorly drained Brookston and similar soils—4 percent

The somewhat poorly drained Selfridge and similar soils—3 percent

The well drained Riddles and similar soils—2 percent The somewhat poorly drained Baugo and similar soils—1 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Crosier—2e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate Permeability below a depth of 40 inches: Slow

Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Medium Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UeqA—Urban land-Gilford complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions and drainageways on outwash plains

Position on the landform: Footslopes and toeslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Gilford and similar soils—40 percent

The poorly drained Sebewa and similar soils— 5 percent

The poorly drained Rensselaer and similar soils— 3 percent

The somewhat poorly drained Brady and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Gilford—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Gilford Soil

Parent material: Coarse-loamy outwash over sandy outwash

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.1 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March) Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Very low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UewA—Urban land-Brems-Morocco complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The moderately well drained Brems and similar soils— 25 percent

The somewhat poorly drained Morocco and similar soils—15 percent

The somewhat poorly drained Brady and similar soils—5 percent

The well drained Osolo and similar soils—5 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Brems—4s; Morocco—4s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Brems Soil

Parent material: Sandy outwash

Drainage class: Moderately well drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80

inches

Available water capacity: About 5.3 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 2.0 feet (January, February, March, April,

May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Properties and Qualities of the Morocco Soil

Parent material: Sandy outwash

Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UfbA—Urban land-Brookston complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on outwash plains and till plains

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Position on the landform: Toeslopes and footslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Brookston and similar soils—40 percent

The poorly drained Rensselaer and similar soils— 4 percent

The somewhat poorly drained Crosier and similar soils—3 percent

The poorly drained Goodell and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Brookston—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Brookston Soil

Parent material: Fine-loamy till Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderately

slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 3.0 to 5.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): At the surface (April, May)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UfhA—Urban land-Coloma complex, 0 to 2 percent slopes

Setting

Landform: Urban land on moraines and outwash plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The somewhat excessively drained Coloma and similar soils—40 percent

The excessively drained Tyner and similar soils—4 percent

The excessively drained Bristol and similar soils— 3 percent

The well drained Osolo and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Coloma—4s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash Drainage class: Somewhat excessively

drained

Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

UfhB—Urban land-Coloma complex, 2 to 5 percent slopes

Setting

Landform: Urban land on moraines and outwash plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land-50 percent

The somewhat excessively drained Coloma and similar soils—40 percent

The excessively drained Tyner and similar soils—4 percent

The excessively drained Bristol and similar soils— 3 percent

The well drained Osolo and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Coloma—4s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively drained Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

UfhC—Urban land-Coloma complex, 5 to 10 percent slopes

Setting

Landform: Urban land on moraines and outwash plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The somewhat excessively drained Coloma and similar soils—40 percent

The excessively drained Bristol and similar soils—4 percent

The excessively drained Tyner and similar soils—4 percent

The well drained Osolo and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Coloma—6s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Coloma Soil

Parent material: Sandy outwash

Drainage class: Somewhat excessively

drained

Permeability to a depth of 40 inches: Rapid

Permeability below a depth of 40 inches: Moderately

rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.8 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: Very high

UfmA—Urban land-Coupee complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains
Position on the landform: Backslopes, shoulders, and
summits

Map Unit Composition

Urban land—50 percent

The well drained Coupee and similar soils—40 percent The well drained Door and similar soils—4 percent The somewhat poorly drained Auten and similar soils—3 percent

The well drained Tracy and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Coupee—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Coupee Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid

Permeability below a depth of 40 inches: Rapid

Depth to restrictive feature: 30 to 40 inches to strongly contrasting textural stratification

Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UfrA—Urban land-Del Rey complex, 0 to 1 percent slopes

Setting

Landform: Urban land on lake plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The somewhat poorly drained Del Rey and similar soils—40 percent

The poorly drained Milford and similar soils—4 percent The somewhat poorly drained Baugo and similar soils—3 percent

The somewhat poorly drained Whitaker and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Del Rey—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Del Rey Soil

Parent material: Clayey lacustrine deposits
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Slow to moderate
Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 0.5 foot (March, April)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: High

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UftA—Urban land-Elston complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land—50 percent

The well drained Elston and similar soils—40 percent The excessively drained Mishawaka and similar soils—4 percent

The well drained Bainter and similar soils—3 percent The well drained Schoolcraft and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Elston—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Elston Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UfzA—Urban land-Mishawaka complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The excessively drained Mishawaka and similar soils—45 percent

The well drained Elston and similar soils—5 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Mishawaka-3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Mishawaka Soil

Parent material: Sandy outwash Drainage class: Excessively drained

Permeability to a depth of 40 inches: Moderately rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.0 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to

4.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UgaA—Urban land-Morocco complex, 0 to 1 percent slopes

Setting

Map Unit Composition

Landform: Urban land on outwash plains Position on the landform: Backslopes, shoulders, and summits

Urban land-50 percent

The somewhat poorly drained Morocco and similar

soils—40 percent

The well drained Osolo and similar soils—4 percent The poorly drained Gilford and similar soils—3 percent The poorly drained Maumee and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Morocco-3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Morocco Soil

Parent material: Sandy outwash

Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 0.5 foot (April)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UglA—Urban land-Osolo complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains and outwash

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land-50 percent

The well drained Osolo and similar soils—40 percent The excessively drained Tyner and similar soils— 4 percent

The moderately well drained Brems and similar soils— 3 percent

The somewhat excessively drained Coloma and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Osolo—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Osolo Soil

Parent material: Sandy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.8 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 3.5 feet (January, February, March, April, May, October, November, December)

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low

Susceptibility to wind erosion: High

UgrA—Urban land-Rensselaer complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on outwash plains and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Rensselaer and similar soils—40 percent

The poorly drained Brookston and similar soils—4 percent

The poorly drained Goodell and similar soils—3 percent The somewhat poorly drained Whitaker and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Rensselaer—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Rensselaer Soil

Parent material: Fine-loamy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Slow to moderate

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.5 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 3.0 to 6.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (April, May)

Frequency of ponding: Frequent (January, February, March, April, May, December)

Hydric soil status: Hydric
Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Negligible

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UgsA—Urban land-Riddles-Oshtemo complex, 0 to 1 percent slopes

Setting

Landform: Urban land on moraines and till

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Riddles and similar soils—25 percent
The well drained Oshtemo and similar soils—15
percent

The well drained Metea and similar soils—3 percent The excessively drained Tyner and similar soils— 3 percent

The well drained Crumstown and similar soils—2 percent The moderately well drained Williamstown and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Riddles—1; Oshtemo—3s Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 6.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UgsB—Urban land-Riddles-Oshtemo complex, 1 to 5 percent slopes

Setting

Landform: Urban land on moraines and till plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Riddles and similar soils—25 percent The well drained Oshtemo and similar soils—15

The well drained Metea and similar soils—3 percent The excessively drained Tyner and similar soils— 3 percent

The well drained Crumstown and similar soils—2 percent The moderately well drained Williamstown and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Riddles—2e; Oshtemo—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UgvA—Urban land-Tyner complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains
Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The excessively drained Tyner and similar soils—40 percent

The well drained Osolo and similar soils—5 percent The excessively drained Bristol and similar soils—3 percent

The somewhat excessively drained Coloma and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Tyner—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches:

Rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 4.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UgvB—Urban land-Tyner complex, 1 to 5 percent slopes

Setting

Landform: Urban land on outwash plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

Urban land-50 percent

The excessively drained Tyner and similar soils— 40 percent

The well drained Osolo and similar soils—5 percent The excessively drained Bristol and similar soils—

The somewhat excessively drained Coloma and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Tyner—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash Drainage class: Excessively drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.7 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UgvC—Urban land-Tyner complex, 5 to 10 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Shoulders and backslopes

Map Unit Composition

Urban land-50 percent

The excessively drained Tyner and similar soils— 40 percent

The well drained Osolo and similar soils—5 percent The excessively drained Bristol and similar soils—

The somewhat excessively drained Coloma and similar soils-2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Tyner—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash Drainage class: Excessively drained Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 4.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UgvD—Urban land-Tyner complex, 10 to 18 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The excessively drained Tyner and similar soils—40 percent

The excessively drained Bristol and similar soils— 5 percent

The somewhat excessively drained Coloma and similar soils—3 percent

The well drained Osolo and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Tyner—4e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tyner Soil

Parent material: Sandy outwash
Drainage class: Excessively drained
Permeability to a depth of 40 inches: Rapid
Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 0.5 to 1.0 percent

1.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Low

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Very low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

UhmA—Urban land-Hillsdale complex, 0 to 1 percent slopes

Setting

Landform: Urban land on end moraines

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—40 percent

The well drained Oshtemo and similar soils—4 percent

The well drained Riddles and similar soils—3 percent The excessively drained Tyner and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Hillsdale—2e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.7 inches to a depth

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UhmB—Urban land-Hillsdale complex, 1 to 5 percent slopes

Setting

Landform: Urban land on end moraines
Position on the landform: Backslopes, shoulders,
and summits

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—40 percent

The well drained Oshtemo and similar soils—4 percent

The well drained Riddles and similar soils—3 percent The excessively drained Tyner and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Hillsdale—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UhoC—Urban land-Hillsdale-Oshtemo complex, 5 to 10 percent slopes

Settina

Landform: Urban land on end moraines Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—30 percent The well drained Oshtemo and similar soils—15 percent

The excessively drained Tyner and similar soils— 3 percent

The well drained Riddles and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Hillsdale—3e; Oshtemo—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth of 60 inches

or 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

o percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

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Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

UhoD—Urban land-Hillsdale-Oshtemo complex, 10 to 18 percent slopes

Setting

Landform: Urban land on end moraines Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—30 percent The well drained Oshtemo and similar soils—15 percent

The excessively drained Tyner and similar soils— 3 percent

The well drained Riddles and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Hillsdale—4e; Oshtemo—4e Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth

Content of organic matter in the surface layer: 1.0 to

3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

UhpC—Urban land-Hillsdale-Tracy complex, 5 to 10 percent slopes

Setting

Landform: Urban land on end moraines Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—30 percent The well drained Tracy and similar soils—15 percent The excessively drained Tyner and similar soils— 3 percent

The well drained Riddles and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Hillsdale—3e; Tracy—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

UhpD—Urban land-Hillsdale-Tracy complex, 10 to 18 percent slopes

Setting

Landform: Urban land on end moraines Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Hillsdale and similar soils—30 percent

The well drained Tracy and similar soils—15 percent

The excessively drained Tyner and similar soils— 3 percent

The well drained Riddles and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Hillsdale—4e; Tracy—4e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Hillsdale Soil

Parent material: Coarse-loamy till Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate to

Depth to restrictive feature: More than 80 inches Available water capacity: About 8.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

Hydric soil status: Not hydric

Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for concrete

Surface runoff class: Medium Susceptibility to water erosion: High

Susceptibility to wind erosion: Moderately high

UhwA—Urban land-Martinsville complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains and till plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Martinsville and similar soils—40 percent

The well drained Riddles and similar soils—4 percent The well drained Crumstown and similar soils— 3 percent

The well drained Oshtemo and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Martinsville—1

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 9.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UhwB—Urban land-Martinsville complex, 1 to 5 percent slopes

Setting

Landform: Urban land on outwash plains and till plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Martinsville and similar soils—40 percent

The well drained Riddles and similar soils—4 percent

The well drained Crumstown and similar soils— 3 percent

The well drained Oshtemo and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Martinsville—2e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate Depth to restrictive feature: More than 80 inches Available water capacity: About 8.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

UhwC—Urban land-Martinsville complex, 5 to 10 percent slopes

Setting

Landform: Urban land on outwash plains and till plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Martinsville and similar soils—40 percent The well drained Oshtemo and similar soils—5 percent The well drained Riddles and similar soils—5 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Martinsville—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate
Permeability below a depth of 40 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

UkaA—Urban land-Maumee complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on lake plains and outwash plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Maumee and similar soils—40 percent

The poorly drained Gilford and similar soils—4 percent
The poorly drained Granby and similar soils—4 percent
The somewhat poorly drained Morocco and similar
soils—4 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Maumee—3w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Maumee Soil

Parent material: Sandy outwash Drainage class: Poorly drained

Permeability to a depth of 40 inches: Rapid Permeability below a depth of 40 inches: Rapid Depth to restrictive feature: More than 80 inches Available water capacity: About 5.5 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 0.5 foot (January, February, March,

October, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric

Potential for frost action: Moderate

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UkeA—Urban land-Milford complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on lake

plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Milford and similar soils—40 percent

The poorly drained Rensselaer and similar soils—4 percent

The poorly drained Radioville and similar soils—3 percent The poorly drained Whitepost and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Milford—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Milford Soil

Parent material: Clayey lacustrine deposits

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately slow or moderate

Permeability below a depth of 40 inches: Moderately slow

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, June, July, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UkxA—Urban land-Oshtemo complex, 0 to 1 percent slopes

Setting

Landform: Urban land on moraines, till plains, and outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land-50 percent

The well drained Oshtemo and similar soils—40 percent The moderately well drained Bronson and similar soils—4 percent

The excessively drained Tyner and similar soils— 4 percent

The well drained Elston and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Oshtemo—3s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

or rapiu

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UkxB—Urban land-Oshtemo complex, 1 to 5 percent slopes

Setting

Landform: Urban land on moraines, till plains, and outwash plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Oshtemo and similar soils—40 percent

The excessively drained Tyner and similar soils—
4 percent

The somewhat excessively drained Coloma and similar soils—3 percent

The well drained Tracy and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Oshtemo—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Very low Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UkxC—Urban land-Oshtemo complex, 5 to 10 percent slopes

Setting

Landform: Urban land on moraines and till plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent The well drained Oshtemo and similar soils— 40 percent The excessively drained Tyner and similar soils—4 percent

The somewhat excessively drained Coloma and similar soils—3 percent

The well drained Tracy and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Oshtemo—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Oshtemo Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderately rapid

or rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and low for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

UmfB—Urban land-Riddles-Metea complex, 1 to 5 percent slopes

Setting

Landform: Urban land on till plains

Position on the landform: Shoulders and backslopes

Map Unit Composition

Urban land—50 percent

The well drained Riddles and similar soils—25 percent The well drained Metea and similar soils—15 percent The moderately well drained Williamstown and similar soils—4 percent

The well drained Ormas and similar soils—3 percent

The well drained Oshtemo and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Riddles—3e; Metea—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or moderately rapid

Permeability below a depth of 40 inches: Very slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

Soil Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.2 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric

Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: High

UmfC—Urban land-Riddles-Metea complex, 5 to 10 percent slopes

Setting

Landform: Urban land on till plains

Position on the landform: Shoulders and backslopes

Map Unit Composition

Urban land—50 percent

The well drained Riddles and similar soils—25 percent The well drained Metea and similar soils—15 percent The moderately well drained Williamstown and similar soils—4 percent

The well drained Ormas and similar soils—3 percent
The well drained Oshtemo and similar soils—
3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Riddles—3e; Metea—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately

slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.1 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

UmfD—Urban land-Riddles-Metea complex, 10 to 18 percent slopes

Setting

Landform: Urban land on till plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Riddles and similar soils—25 percent The well drained Metea and similar soils—15 percent The moderately well drained Miami and similar soils—

4 percent

The well drained Oshtemo and similar soils— 3 percent

The excessively drained Tyner and similar soils— 3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Riddles—4e; Metea—4e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Riddles Soil

Parent material: Loamy till over loamy and/or sandy

outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Very slow to

moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 9.9 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium Susceptibility to water erosion: High Susceptibility to wind erosion: Low

Properties and Qualities of the Metea Soil

Parent material: Sandy outwash over loamy till

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid Permeability below a depth of 40 inches: Moderately

slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: High

UmpA—Urban land-Schoolcraft complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains
Position on the landform: Backslopes, shoulders, and
summits

Map Unit Composition

Urban land—50 percent

The well drained Schoolcraft and similar soils—40 percent

The well drained Bainter and similar soils—4 percent The well drained Volinia and similar soils—4 percent The well drained Elston and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Schoolcraft—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Schoolcraft Soil

Parent material: Loamy over sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate to rapid

Permeability below a depth of 40 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Low for steel and moderate for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UmuA—Urban land-Southwest complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on till plains *Position on the landform:* Toeslopes and footslopes

Map Unit Composition

Urban land—50 percent

The poorly drained Southwest and similar soils—40 percent

The poorly drained Brookston and similar soils—4 percent

The poorly drained Washtenaw and similar soils— 4 percent

The very poorly drained Wunabuna and similar soils— 2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Southwest—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Southwest Soil

Parent material: Fine-silty alluvium over fine-silty glaciofluvial deposits

Drainage class: Poorly drained

Permeability to a depth of 40 inches: Moderately slow or moderate

Permeability below a depth of 40 inches: Moderately slow Depth to restrictive feature: More than 80 inches Available water capacity: About 12.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (April, May)

Frequency of ponding: Frequent (January, February,

March, April, May, December)

Hydric soil status: Hydric

Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UmwA—Urban land-Tracy complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains
Position on the landform: Backslopes, shoulders, and
summits

Map Unit Composition

Urban land—50 percent

The well drained Tracy and similar soils—40 percent

The well drained Oshtemo and similar soils— 4 percent

The somewhat poorly drained Auten and similar soils—3 percent

The well drained Coupee and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Tracy—2s

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UmwB—Urban land-Tracy complex, 1 to 5 percent slopes

Setting

Landform: Urban land on outwash plains
Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Tracy and similar soils—40 percent

The well drained Oshtemo and similar soils— 5 percent

The well drained Kalamazoo and similar soils— 3 percent

The well drained Coupee and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Tracy—2e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to 2.0 percent

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low

Susceptibility to wind erosion: Moderately high

UmwC—Urban land-Tracy complex, 5 to 10 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Tracy and similar soils—40 percent

The well drained Oshtemo and similar soils—

5 percent

The well drained Kalamazoo and similar soils— 3 percent

The excessively drained Tyner and similar soils— 2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Tracy—3e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.5 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Moderately high

UmwD—Urban land-Tracy complex, 10 to 18 percent slopes

Setting

Landform: Urban land on outwash plains Position on the landform: Backslopes

Map Unit Composition

Urban land—50 percent

The well drained Tracy and similar soils—40 percent

The well drained Oshtemo and similar soils—

5 percent

The excessively drained Tyner and similar soils—

3 percent

The well drained Spinks and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Tracy—4e

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Tracy Soil

Parent material: Loamy and/or sandy outwash

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate Permeability below a depth of 40 inches: Moderate to

rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 1.0 to

2.0 percent

Shrink-swell potential: Low

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and high for

concrete

Surface runoff class: Medium Susceptibility to water erosion: High

Susceptibility to wind erosion: Moderately high

UmxA—Urban land-Troxel complex, 0 to 1 percent slopes

Setting

Landform: Urban land on outwash plains, stream terraces, and till plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The well drained Troxel and similar soils—40 percent The well drained Elston and similar soils—4 percent The well drained Coupee and similar soils— 3 percent

The well drained Tracy and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned: Troxel—1

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Troxel Soil

Parent material: Silty colluvium over loamy drift

Drainage class: Well drained

Permeability to a depth of 40 inches: Moderate

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80

inches

Available water capacity: About 13.3 inches to a depth

of 60 inches

Content of organic matter in the surface layer: 3.0 to 5.0 percent

0.0 percent

Shrink-swell potential: Moderate

Depth to seasonal high water table: More than 6.7 feet

all year

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: Low for steel and low for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UnoA—Urban land-Whitaker complex, 0 to 1 percent slopes

Setting

Landform: Urban land on moraines, outwash plains, and till plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The somewhat poorly drained Whitaker and similar soils—40 percent

The somewhat poorly drained Baugo and similar soils—4 percent

The somewhat poorly drained Crosier and similar soils—4 percent

The moderately well drained Williamstown and similar soils—2 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Whitaker—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Whitaker Soil

Parent material: Silty and/or loamy outwash
Drainage class: Somewhat poorly drained
Dermachility to a double of 40 inches Madara

Permeability to a depth of 40 inches: Moderate or moderately rapid

moderately rapid

Permeability below a depth of 40 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 10.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth,

months): 0.5 foot (April) Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

UnqB—Urban land-Williamstown-Crosier complex, 1 to 5 percent slopes

Setting

Landform: Urban land on moraines and till plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

Urban land—50 percent

The moderately well drained Williamstown and similar soils—25 percent

The somewhat poorly drained Crosier and similar soils—15 percent

The moderately well drained Miami and similar soils—4 percent

The well drained Riddles and similar soils—3 percent The somewhat poorly drained Selfridge and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None assigned; Williamstown—2e; Crosier—2e Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow
Depth to restrictive feature: 24 to 40 inches to dense
material

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth,

months): 0.5 foot (March, April)

Hydric soil status: Not hydric

Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

UntA—Urban land-Wunabuna complex, 0 to 1 percent slopes

Setting

Landform: Urban land in depressions on lake plains and till plains

Position on the landform: Toeslopes and footslopes

Map Unit Composition

Urban land-50 percent

The very poorly drained Wunabuna, drained, and similar soils—40 percent

The poorly drained Brookston and similar soils—4 percent

The very poorly drained Benadum and similar soils— 3 percent

The poorly drained Gilford and similar soils—3 percent

Interpretive Groups

Land capability classification: Urban land—None

assigned; Wunabuna—2w

Prime farmland status: Not prime farmland

Properties and Qualities of the Urban Land

Urban land includes land areas that are covered by paved or graveled roads, parking lots, walkways, residential and commercial buildings, and cemetery structures.

Properties and Qualities of the Wunabuna, Drained, Soil

Parent material: Clayey alluvium over herbaceous organic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderately slow to moderately rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 16.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

Usl—Udorthents, rubbish

Areas of Udorthents, rubbish, are sanitary landfills. Because of the extreme variability in the material in these areas, no typical soil series is representative of these areas. Generally, these are areas where rubbish is currently being placed or buried or has previously been placed or buried. Included are areas where demolished building materials were buried and then new developments established including areas used for recreational purposes.

Map Unit Composition

Udorthents, rubbish—100 percent

Interpretive Groups

Land capability classification: Udorthents, rubbish-

None assigned

Prime farmland status: Not prime farmland

WcnAl—Waterford loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood plains

Position on the landform: Backslopes, shoulders, summits, toeslopes, and footslopes

Map Unit Composition

The somewhat poorly drained Waterford and similar soils—80 percent

The moderately well drained Abscota and similar soils—10 percent

The very poorly drained Adrian and similar soils— 5 percent

The poorly drained Gravelton and similar soils— 5 percent

Interpretive Groups

Land capability classification: Waterford—5w Prime farmland status: Not prime farmland

Properties and Qualities of the Waterford Soil

Parent material: Loamy alluvium over sandy alluvium

Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Moderately rapid Permeability below a depth of 40 inches: Moderately rapid or rapid

Depth to restrictive feature: More than 80 inches Available water capacity: About 5.9 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Low

Apparent seasonal high water table is highest (depth, months): 0.5 foot (April, May)

Frequency of flooding: Frequent (January, February,

March, April, May, June, November, December) Hydric soil status: Hydric

Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Very low Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

WoaA—Williamstown loam, 0 to 1 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The moderately well drained Williamstown and similar soils—85 percent

The somewhat poorly drained Crosier and similar soils—5 percent

The well drained Riddles and similar soils—5 percent The somewhat poorly drained Selfridge and similar soils—5 percent

Interpretive Groups

Land capability classification: Williamstown—1

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

WoaB2—Williamstown loam, 1 to 5 percent slopes, eroded

Setting

Landform: Moraines and till plains

Position on the landform: Backslopes, shoulders, and

summits

Map Unit Composition

The moderately well drained Williamstown and similar soils—85 percent

The somewhat poorly drained Crosier and similar soils—5 percent

The well drained Riddles and similar soils— 5 percent

The somewhat poorly drained Selfridge and similar soils—5 percent

Interpretive Groups

Land capability classification: Williamstown—2e Prime farmland status: Prime farmland where drained

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

WoaC2—Williamstown loam, 5 to 10 percent slopes, eroded

Setting

Landform: Moraines and till plains
Position on the landform: Backslopes

Map Unit Composition

The moderately well drained Williamstown and similar soils—80 percent

The somewhat poorly drained Crosier and similar soils—10 percent

The moderately well drained Miami and similar soils— 5 percent

The well drained Riddles and similar soils—5 percent

Interpretive Groups

Land capability classification: Williamstown—3e Prime farmland status: Not prime farmland

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

WobB—Williamstown-Crosier loams, 1 to 5 percent slopes

Setting

Landform: Moraines and till plains

Position on the landform: Summits, backslopes, and

shoulders

Map Unit Composition

The moderately well drained Williamstown and similar soils—50 percent

The somewhat poorly drained Crosier and similar soils—30 percent

The moderately well drained Miami and similar soils— 10 percent

The well drained Riddles and similar soils—5 percent The somewhat poorly drained Selfridge and similar soils—5 percent

Interpretive Groups

Land capability classification: Williamstown—2e; Crosier—2e

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

Properties and Qualities of the Crosier Soil

Parent material: Loamy till over loamy basal till Drainage class: Somewhat poorly drained

Permeability to a depth of 40 inches: Slow to moderate

Permeability below a depth of 40 inches: Slow Depth to restrictive feature: 24 to 40 inches to dense material

Available water capacity: About 6.7 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 0.5 foot (March, April)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and low for

concrete

Surface runoff class: Medium

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

WrxAN—Wunabuna silt loam, drained, 0 to 1 percent slopes

Setting

Landform: Depressions in lake plains and till plains *Position on the landform:* Toeslopes and footslopes

Map Unit Composition

The very poorly drained Wunabuna, drained, and similar soils—85 percent

The very poorly drained Benadum and similar soils— 5 percent

The poorly drained Brookston and similar soils— 5 percent

The poorly drained Gilford and similar soils— 5 percent

Interpretive Groups

Land capability classification: Wunabuna—2w Prime farmland status: Farmland of statewide importance

Properties and Qualities of the Wunabuna, Drained, Soil

Parent material: Clayey alluvium over herbaceous organic material

Drainage class: Very poorly drained

Permeability to a depth of 40 inches: Moderately slow to moderately rapid

Permeability below a depth of 40 inches: Moderately slow to moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 16.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 2.0 to 4.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): At the surface (January, February, March, April, May, November, December)

Frequency of ponding: Frequent (January, February, March, April, May, November, December)

Hydric soil status: Hydric Potential for frost action: High

Hazard of corrosion: Moderate for steel and low for

concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

WtbA—Whitaker loam, 0 to 1 percent slopes

Setting

Landform: Moraines, outwash plains, and till plains Position on the landform: Backslopes, shoulders, and summits

Map Unit Composition

The somewhat poorly drained Whitaker and similar soils—75 percent

The somewhat poorly drained Baugo and similar soils—10 percent

The somewhat poorly drained Crosier and similar soils—8 percent

The moderately well drained Williamstown and similar soils—7 percent

Interpretive Groups

Land capability classification: Whitaker—2w
Prime farmland status: Prime farmland where drained

Properties and Qualities of the Whitaker Soil

Parent material: Silty and/or loamy outwash
Drainage class: Somewhat poorly drained
Permeability to a depth of 40 inches: Moderate or

moderately rapid

Permeability below a depth of 40 inches: Moderate or

moderately rapid

Depth to restrictive feature: More than 80 inches

Available water capacity: About 10.9 inches to a depth
of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Apparent seasonal high water table is highest (depth, months): 0.5 foot (April)

Hydric soil status: Not hydric Potential for frost action: High

Hazard of corrosion: High for steel and moderate for

concrete

Surface runoff class: Low

Susceptibility to water erosion: Low Susceptibility to wind erosion: Low

WujB—Williamstown-Moon complex, 1 to 5 percent slopes

Setting

Landform: Moraines and till plains
Position on the landform: Backslopes, shoulders,
and summits

Map Unit Composition

The moderately well drained Williamstown and similar soils—45 percent

The moderately well drained Moon and similar soils—40 percent

The well drained Crumstown and similar soils—5 percent The well drained Metea and similar soils—5 percent The somewhat poorly drained Selfridge and similar soils—5 percent

Interpretive Groups

Land capability classification: Williamstown—2e; Moon—3e

Prime farmland status: Prime farmland where drained

Properties and Qualities of the Williamstown Soil

Parent material: Loamy till over loamy basal till Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Very slow to moderate

Permeability below a depth of 40 inches: Very slow or slow

Depth to restrictive feature: 20 to 40 inches to dense material

Available water capacity: About 6.1 inches to a depth of 60 inches

Content of organic matter in the surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, May, June, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Low

Susceptibility to water erosion: Moderate Susceptibility to wind erosion: Low

Properties and Qualities of the Moon Soil

Parent material: Sandy outwash over fine-loamy

Drainage class: Moderately well drained

Permeability to a depth of 40 inches: Moderate to

rapid

Permeability below a depth of 40 inches: Moderately

slow or moderate

Depth to restrictive feature: More than 80 inches Available water capacity: About 7.6 inches to a depth of 60 inches

Content of organic matter in the surface layer: 0.5 to 2.0 percent

Shrink-swell potential: Moderate

Perched seasonal high water table is highest (depth, months): 1.5 feet (January, February, March, April, November, December)

Hydric soil status: Not hydric Potential for frost action: Moderate

Hazard of corrosion: Moderate for steel and moderate

for concrete

Surface runoff class: Negligible Susceptibility to water erosion: Low Susceptibility to wind erosion: High

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are not limited, somewhat limited, and very limited. The suitability ratings are expressed as well suited, moderately well suited, poorly suited, and unsuited or as good, fair, poor, and very poor.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Agronomy

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the estimated yields of the main crops and pasture plants are listed for each soil; the system of land capability classification used by the Natural Resources Conservation Service is explained; and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be

obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1997, about 154,142 acres in St. Joseph County was used for crops and pasture. About 73,200 acres was used for corn, 50,000 for soybeans, 4,400 for wheat, and 6,800 for hay (Gann and Liles, 2000). The remaining acreage was used for specialty crops such as peppermint, spearmint, seed corn, Christmas trees, onions, potatoes, and other truck crops.

In the 5-year period from 1992 to 1997, the amount of land being farmed in the county dropped from 172,348 acres to 154,142 acres (Gann and Liles, 1994; Gann and Liles, 2000). About 3,000 acres per year is converted from farmland to urban and industrial areas; some of these converted areas are prime farmland.

There is little potential for increasing the cropland in St. Joseph County due to increased urban pressures. Crop production in the county could be increased by applying measures that conserve soil and water and by extending the latest crop production technology to all of the cropland in the county.

The optimal and most beneficial use of the land requires careful planning and good management. Soil limitations and hazards need to be controlled so that the land can be utilized to its fullest potential. In the following paragraphs, the common soil limitations and hazards in the county are discussed.

The paragraphs that follow describe the main management concerns affecting crops and pasture in the survey area and the management practices that have been used successfully.

Soil erosion is a major hazard to the soils of St. Joseph County. Loss of the surface layer through erosion reduces the productivity of these soils. As the surface layer is eroded, nutrients and organic matter are lost and part of the subsoil is incorporated in the plow layer. The subsoil material, which dominantly has a high pH and a low natural fertility level, can restrict seed germination and the availability of plant nutrients. Exposure of the subsoil can increase the hazard of erosion.

Water erosion is a hazard on sloping soils that have a loamy surface layer. Water erosion can result in clogged tile drains and sedimentation in creeks, ditches, and waterways. Sediment that contains fertilizer and pesticides can reduce the quality of the water. Controlling erosion reduces the runoff rate, increases the rate of water infiltration, and minimizes the loss of organic matter and the amount of sediment that enters the waterways.

A system of conservation tillage that leaves crop residue on the surface increases the rate of water

infiltration and reduces the hazards of runoff and erosion. No-till cropping systems require high levels of management. Herbicides and insecticides are used to control weeds and insects. No-till farming is especially effective in minimizing erosion on the lighter colored, well drained sloping soils in the county. It minimizes soil compaction, increases the content of organic matter, and is less labor intensive than other systems. No-till farming has many conservation and ecological benefits, including fuel savings, wildlife enhancement, and improvement of soil tilth.

Grassed waterways are used in areas that have undulating and gently rolling slopes. They help to control gully erosion on sloping soils. They also stabilize areas that are already eroded. Subsurface drains are installed beneath the waterways to remove excess internal water. Removing this water enhances the growth of plants and facilitates the use of machinery. Grassed waterways work effectively on such soils as Crosier, Williamstown, and Miami.

Grade stabilization structures are needed in areas where a change in grade allows water to drop so quickly that erosion occurs. These structures are commonly needed where a grassed waterway enters a ditch.

Water and sediment control basins (WASCoB's), terraces, and diversions help control runoff on gently sloping and moderately sloping soils. WASCoB's and terraces store runoff behind earthen dams until the water can enter subsurface drains. Diversions route water to grassed waterways, which empty into suitable outlets.

Filter strips and riparian buffer strips are vegetative plantings of grasses, shrubs, or trees along watercourses designed to trap sediment before it can get into a watercourse. These practices, sometimes in combination with livestock exclusion fencing, helps greatly to improve water quality.

A protective plant cover helps to control runoff and increases the rate of water infiltration. Plants and roots act as a cushion to absorb the impact of raindrops before they contact the soil. Thus, more water penetrates the surface and less is lost as runoff. A cropping system that keeps crop residue or a plant cover on the surface helps to keep soil losses to a minimum so that the productivity is the soil loss is maintained. Planting winter cover crops and green manure crops on diary farms and including grasses or legumes in rotation for forage reduce the risk of erosion in sloping areas, provide nitrogen, and improve soil tilth. In 1997, about 5,000 acres were in a rotation of hay or permanent pasture (Gann and Liles, 2000).

Erosion cannot be entirely prevented, but it can be controlled so that it does not diminish the productive

capacity of the soil. When practices are designed for a particular field or farm, several factors should be considered. These factors include the type of farming operation, the soil type, the length and steepness of the slope, the crop rotation, tillage methods, and rainfall patterns. Further information about the design of erosion control measures is available at the local office of the Natural Resources Conservation Service.

Cropland Limitations and Hazards

The cropland management concerns affecting the use of the soils in the survey area are shown in table 5. The main concerns in managing cropland are controlling erosion; reducing soil wetness and ponding; reducing surface crusting; minimizing clodding; operating equipment safely on steep slopes; and limiting the effects of restricted permeability and low available water capacity.

Some of the limitations and hazards shown in the table cannot be easily overcome. These include flooding, limited rooting depth, restricted permeability, low available water capacity, and subsidence.

Generally, a combination of several practices is needed to control both *water erosion* and *wind erosion*. Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, grassed waterways, and field windbreaks help to minimize excessive soil loss. Soils that have deep or wide gullies are generally not suitable for use as cropland.

Wetness is a limitation in some cropland areas, and ponding is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed (fig. 3, fig. 4, and fig. 5). Generally, soils that are ponded for long or very long periods during the growing season are not suitable for use as cropland.

Practices that reduce *surface crusting* and minimize *clodding* include incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage. Surface cloddiness can be minimized by avoiding tillage when the soils are too wet.

Measures that conserve moisture are needed in areas where the soils have a *low* or *moderate* available water capacity. These measures primarily involve reducing the evaporation and runoff rates and increasing the rate of water infiltration. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Both a *low pH* and a *high pH* (soil reaction) inhibit the uptake of certain nutrients by the plants or accelerate the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific crop. Generally, the natural reaction in the surface layer of most of the soils in the area is a low pH, except for some soils on flood plains. For most soils in the area, the pH should be raised to an optimal level for the crop being grown. In contrast, soils with a high pH may need treatment to lower the pH so that certain elements are adequately available for specific crop use.

Some soils have an *equipment limitation* because of the slope. In areas where slopes are 15 percent or more, the operation of farm equipment may be restricted and could become hazardous. Generally, soils with an average slope of 18 percent or more are not suitable for use as cropland.

Areas in which 3 percent or more of the surface is covered with stones or boulders have an *equipment limitation*. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during planting operations. Soils that have a gravelly or cobbly surface layer also have an *equipment limitation*.

Limited rooting depth and the available moisture for plant growth are limited by root-restricting layers, such as bedrock, a fragipan, dense till, or stratified sand and gravel, within a depth of 40 inches.

Crops can be damaged if the soil is subject to occasional or frequent periods of *flooding* during the growing season. Small grain crops grown in the winter are especially susceptible to damage. Water-tolerant species should be used in areas subject to flooding during the growing season.

Subsidence is the loss or settlement of the organic soil layers through oxidation of the organic soil material. Saturating the organic layers by raising the water table during the noncropping season can minimize the oxidation of organic soil layers.

The following is an explanation of the criteria used to determine the limitations or hazards.

Clodding.—The soil has 35 percent or more clay in the surface layer.

Crusting.—The content of organic matter in the surface layer is less than or equal to 2 percent, the percent passing the number 200 sieve is more than 50 percent, and the content of clay is less than or equal to 32 percent.



Figure 3.—Corn growing on Houghton muck, drained, 0 to 1 percent slopes.

Equipment limitation.—The soil has an average slope of 15 percent or more; or the soil has stones or boulders that cover 3 percent or more of the surface; or the surface layer contains 15 percent or more rock fragments.

Flooding.—The soil is subject to occasional or frequent periods of flooding during the growing season.

High pH.—Soils that naturally have high pH or high reaction, typically a pH value equal to or more than 7.4 in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Low available water capacity.—The weighted average of the available water capacity is equal to or more than 0.05 inch but less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Low pH.—Soils that naturally have low pH or low reaction, typically a pH value equal to or less than 6.0 in the surface layer.

Moderate available water capacity.—The weighted average of the available water capacity is equal to or more than 0.10 inch but less than 0.15 inch of water per inch of soil within a depth of 60 inches.

Ponding.—The soil is subject to occasional or frequent periods of ponding during the growing season.

Restricted permeability.—Permeability of the soil is less than 0.2 inch per hour in one or more layers within a depth of 40 inches.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is greater than 0.8, and the average slope is 3 percent or more.

Wetness.—The soil has a water table within a depth of 1.5 feet of the surface during the growing season.

Wind erosion.—The soil is in wind erodibility group 1 or 2 (or in group 3 if the soil is not on a flood plain).

Erodibility factors (e.g., Kf or Kw) and wind erodibility groups are described under the heading "Physical Properties."

Pasture Limitations and Hazards

Growing legumes, cool-season grasses, and warmseason grasses that are suited to the soils and the climate of the area helps to maintain a productive stand of pasture (fig. 6 and fig. 7).

The pastureland management concerns affecting the use of the soils in the survey area are shown in table 5. The main management concerns affecting pasture are erosion hazard, equipment limitation, wetness and ponding, trafficability, and low or very low available water capacity.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *depth to bedrock, low or very low available water capacity, subsidence,* and *flooding.*

Also, the majority of the soils suitable for growing legumes have a high potential for frost action. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about legumes subject to damage from frost heave. This hazard is not listed

in table 6 because it applies to the majority of the soils.

Both water erosion and wind erosion reduce the productivity of pastureland. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, planting field windbreaks, farming on the contour, and using a system of conservation tillage that leaves a protective cover of crop residue on the surface can help to minimize erosion. Soils that have deep or wide gullies are generally not suitable for use as pasture.

Wetness is a limitation in some pastured areas, and ponding is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tiles, open drainage ditches, surface drains, or a combination of these. Measures that maintain the drainage system are needed. Generally, soils that are ponded for long or very long periods during the growing season are not suitable for pasture. Overgrazing or grazing when the soil is wet reduces the extent of plant cover and



Figure 4.—Soybeans growing on Crosier loam, 0 to 1 percent slopes, in the swells and Brookston loam, 0 to 1 percent slopes, in the swales.



Figure 5.—Mint is a common crop grown on muck soils. This mint is growing on Henrietta muck, drained, 0 to 1 percent slopes.

results in surface compaction, and thus it increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition.

Subsidence is the loss or settlement of the organic soil layers through oxidation of the organic soil material. Saturating the organic layers by raising the water table during the noncropping season can minimize the oxidation of organic soil layers.

Trafficability of both livestock and machinery across the soil is a limitation for soils that have a wetness limitation along with a loamy, clayey, or organic surface layer. The proper location of livestock facilities (watering, feeding, and shelter) helps to minimize surface compaction or the formation of ruts and thus helps to prevent damage to the pasture crops.

Some soils have an *equipment limitation* because of the slope. In areas where slopes are 15 percent or more, the operation of farm equipment may be restricted and could become hazardous. Generally,

soils with an average slope of 25 percent or more are not suitable for use as pasture.

Areas in which 3 percent or more of the surface is covered with stones or boulders have an *equipment limitation*. Large rock fragments on the surface can limit the type of equipment that can be used or can damage equipment during reseeding and planting operations. Soils that have a gravelly or cobbly surface layer also have an *equipment limitation*.

Soils that have root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, within a depth of 40 inches have *limited rooting depth* and limited available water for plant growth. Available water capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of the pasture may be reduced for soils that have *low or very low available water capacity*. The soil moisture may be inadequate for the maintenance of a healthy community of desired pasture species and, thus, the desired number of livestock. A poor quality pasture may increase the hazard of erosion and increase the runoff of pollutants.

Planting drought-resistant species of grasses and legumes helps to establish a cover of vegetation. Irrigation may be needed.

Both a *low pH* and a *high pH* (soil reaction) inhibit the uptake of certain nutrients by the plants or accelerate the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

The following is an explanation of the criteria used to determine the limitations or hazards.

Equipment limitation.—The soil has an average slope of 15 percent or more; or the soil has stones or boulders that cover 3 percent or more of the surface; or the surface layer contains 15 percent or more rock fragments.

Flooding.—The soil is subject to occasional or frequent periods of flooding during the growing season.

High pH.—Soils that naturally have high pH or high reaction, typically a pH value equal to or more than 7.4 in the surface layer.

Limited rooting depth.—Root-restricting layers, such as bedrock, a fragipan, dense till, and stratified sand and gravel, are within a depth of 40 inches.

Low or very low available water capacity.—The weighted average of the available water capacity is less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Low pH.—Soils that naturally have low pH or low reaction, typically a pH value equal to or less than 6.0 in the surface layer.

Ponding.—The soil is subject to occasional or frequent periods of ponding during the growing season.

Subsidence.—The soil has an organic layer within a depth of 60 inches.

Trafficability limitation.—The soil is somewhat poorly drained, poorly drained, or very poorly drained, and the surface layer is loamy, clayey, or organic soil material.



Figure 6.—Dairy cows are a common sight in St. Joseph County. Pasture in an area of Miami clay loam, 5 to 10 percent slopes, severely eroded.



Figure 7.—Horses are common around St. Joseph County. Horses in a pasture on Brookston loam, 0 to 1 percent slopes.

Water erosion.—The erodibility factor of the surface layer (Kf or Kw) multiplied by the slope is greater than 0.8, and the average slope is 3 percent or more.

Wetness.—The soil is poorly drained or very poorly drained.

Wind erosion.—The soil is in wind erodibility group 1 or 2 (or group 3 if the soil is not on a flood plain).

Erodibility factors (e.g., Kf or Kw) and wind erodibility groups are described under the heading "Physical Properties."

Yields per Acre

The average yields per acre that can be expected for the principal crops under a high level of management are shown in table 6. The principal crops are corn, soybeans, winter wheat, grass-legume hay, and pasture. Yields for each map unit are based on a composit average of all soil components that are typically in the map unit. In any given year, yields may be higher or lower than those indicated in the table. These differences are the result of variations in rainfall

and other climatic factors; varieties grown; environmental factors, such as plant diseases and insect infestations; and type of fertility program. The land capability classification of map units in the survey area also is shown in the table.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed and implemented. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about the management and productivity of the soils for those crops.

The estimated yields in table 6 were calculated based on a specific value for corn yields, and the yields for the other crops listed are calculated as a percentage relative to the corn yield.

Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), or the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated grass-legume hay and pasture yields in table 6 were calculated based on a specific value for corn yields and are calculated as a percentage relative to the corn yield.

Yields for hay and pasture crops vary widely based on the type and combination of grass and legume crops grown.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 6.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (fig. 8). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and

limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey (USDA, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no



Figure 8.—Wheat growing in an area of Oshtemo sandy loam, 0 to 1 percent slopes.

erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 6.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land,

pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management. including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime

farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil (fig. 9).

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.



Figure 9.—Windbreaks are used as an important tool to fight wind erosion. This windbreak is growing in an area of Tracy sandy loam, 1 to 5 percent slopes.

Forestland

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forestland Productivity

In table 9, the *potential productivity* of merchantable trees or *local plant names* on a soil is expressed as a site index and as a volume number (fig. 10 and fig. 11).

The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. More detailed information regarding site index is available in the "National Forestry Manual" (USDA, National Forestry Manual), which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The volume of wood fiber, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, evenaged, unmanaged stand.

Trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In tables 10a, 10b, 10c, and 10d, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the

unfavorable properties requires special design, extra maintenance, and costly alteration.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high.* Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual" (USDA, National Forestry Manual), which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For limitations affecting construction of haul roads and log landings, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of slight indicates that no significant limitations affect construction activities, moderate indicates that one or more limitations can cause some difficulty in construction, and severe indicates that one or more limitations can make construction very difficult or very costly.

The ratings of suitability for log landings are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column soil rutting hazard are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of slight indicates that the soil is subject to little or no rutting, moderate indicates that rutting is likely, and severe indicates that ruts form readily.



Figure 10.—Forestland management is important for soil conservation. Trees growing in an area of Brookston loam, 0 to 1 percent slopes.

Ratings in the column hazard of off-road or off-trail erosion are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; moderate indicates that some erosion is likely and that erosion-control measures may be needed; severe indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and very severe indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column hazard of erosion on roads and trails are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of

slight indicates that little or no erosion is likely; moderate indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and severe indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column suitability for roads (natural surface) are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or

poorly suited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of* harvesting equipment are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

There are a number of state and county parks within St. Joseph County. These include Potato Creek

State Park, Chamberlain Lake Nature Preserve; Bendix Woods, Ferrettie-Baugo Creek, and St. Patrick's county parks; and Spicer Lake Nature Preserve. There are also numerous city, town, township, and privately managed parks. These parks offer visitors and residents of St. Joseph County a wide variety of recreational opportunities.

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specific use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one



Figure 11.—Snow-covered trees growing in an area of Crosier loam, 0 to 1 percent slopes.

or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of the flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil

properties that affect the ease of developing picnic area and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting or filling. The ratings are based on the soil properties that affect trafficability and erodibilty. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonates; and

sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, sanitary facilities, and construction materials.

Wildlife Habitat

Rick Ward, district wildlife biologist, Indiana Department of Natural Resources, Division of Fish and Wildlife, helped prepare this section.

Wildlife plays an important role in the quality of life for the people of St. Joseph County. Most people enjoy watching wildlife. For others, fishing, hunting, or trapping are important recreational pursuits. Wildlife can also be an indicator of the health of our environment.

There are three basic types of wildlife habitat—upland, woodland, and wetland. Upland habitat is generally open grasslands with some shrubs that occur on dry to medium soils. Woodland habitat is composed primarily of forestlands and may include areas of wetlands or grasslands. Wetland habitat is marsh, pond, lake, river, stream, or ditch areas and may be wet seasonally or year round. The interplay of soil type, moisture regime, and vegetation largely determines what species or group of species of wildlife can live in a particular habitat.

Typical upland wildlife species are bobwhite quail, ring-necked pheasants, cottontail rabbits, and songbirds such as meadowlarks, bobolinks, and dickcissels. Management practices on upland areas that benefit wildlife may include the planting of grain food plots or leaving a small portion of a crop unharvested near good cover. Cool-season (pasturetype) grasses, clovers, and legumes can be planted and managed as food sources, nesting areas, firebreaks, travel and access areas, and bugging areas for young birds. Warm-season (prairie type) grasses and forbs can be planted and managed as winter cover, nesting cover, and a place to escape predators. Big bluestem, little bluestem, switchgrass, and Indiangrass are the four main species of warmseason grasses. Forbs species may include coreopsis, coneflower, leadplant, lespedezas, milkweeds, and goldenrods.

Native shrub species can be planted to create fence rows, improve existing fence rows, or as part of a woodland planting. Shrubs benefit wildlife by

providing food sources, cover, and nesting areas. On wetter soils, shrubs such as elderberry, winterberry, redosier dogwood, gray dogwood, ninebark, and chokeberry can be planted. On drier soils, shrubs such as round-leaved dogwood, flowering dogwood, chokecherry, redbud, hazelnut, or black haw can be planted. Many other native species of shrubs are beneficial to a wide variety of wildlife.

Typical woodland wildlife species are fox squirrels, white-tailed deer, wild turkeys, woodpeckers, hawks and owls, and songbirds such as chickadees, brown creepers, kinglets, orioles, and wood thrushes.

Management practices on woodland areas that benefit wildlife may include adding shrubs to a reforestation planting, leaving brush piles after timber harvest, and allowing some grapevines to grow. A well-managed timber harvest can benefit wildlife by promoting growth of new plants after an overstory tree is removed.

On wetter sites, trees such as hackberry, sweetgum, pin oak, green ash, or swamp white oak may be planted to benefit wildlife. In drier sites, white ash, black cherry, shagbark hickory, white oak, and bur oak may be planted. Many other native tree species are beneficial to a wide variety of wildlife as food sources, cover, and nesting sites.

Typical wetland wildlife species are nesting and migratory waterfowl such as mallards, wood ducks, and Canada Geese, beavers and muskrats, great blue herons and other migratory shorebirds, frogs, and turtles. Songbird species that use wetland areas would include red-winged blackbirds, kingfishers, swamp sparrows, bank swallows, and marsh wrens. Management practices on wetland areas may include restoring the hydrology of a previously drained site to make a permanent wetland, creating a wetland on a new site, improving the water-holding capacity of a site, or managing the vegetation to maximize the variety of plants growing on the site. Wetlands benefit people by storing floodwater, filtering runoff, protecting areas from erosion, recharging ground water, and providing recreational areas. Wetlands with 4 feet or less of water are the most beneficial for the greatest variety of wildlife. Many projects now contain a deeper pond area to benefit fish and a shallower area to benefit other wetland species.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water (fig. 12). Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Technical assistance is available to landowners through the Indiana Department of Natural Resources, Divisions of Fish and Wildlife and Forestry, and through offices of the Natural Resources Conservation Service.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for

satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible (Allan and others, 1963).

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes



Figure 12.—Wildlife habitat in areas of Wunabuna silt loam, drained, 0 to 1 percent slopes, and Adrian muck, drained, 0 to 1 percent slopes.

are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are timothy, orchard grass, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggar tick, wildrye, and sedge.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, and hickory.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Buol and others, 1980; Cowardin and others, 1979; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1995). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation (fig. 13).

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2003) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils.



Figure 13.—Houghton muck, undrained, 0 to 1 percent slopes, is one of the many hydric soils in St. Joseph County. These areas provide good habitat for wetland wildlife

The indicators that can be used to make onsite determinations of hydric soils in St. Joseph County are specified in "Field Indicators of Hydric Soils in the United States" (USDA, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil description, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if one (or more) of the approved indicators is present.

This survey can be used to locate probable areas of hydric soils.

The following map units meet the definition of hydric soils and in addition have at least one of the hydric soil indicators. This list can help in planning land uses;

however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; USDA, 1998).

AatAN—Ackerman muck, drained, 0 to 1 percent slopes

AbhAN—Adrian muck, drained, 0 to 1 percent slopes AbhAU—Adrian muck, undrained, 0 to 1 percent slopes

ApuAN—Antung muck, drained, 0 to 1 percent slopes BuuA—Brookston loam, 0 to 1 percent slopes

CmbAl—Cohoctah loam, 0 to 1 percent slopes, frequently flooded, brief duration

EchAN—Edwards muck, drained, 0 to 1 percent slopes

EchAU—Edwards muck, undrained, 0 to 1 percent slopes

EcrAN—Edselton muck, drained, 0 to 1 percent slopes EcrAU—Edselton muck, undrained, 0 to 1 percent slopes

GczA—Gilford sandy loam, 0 to 1 percent slopes GdnA—Gilford mucky sandy loam, 0 to 1 percent slopes

- HfbAN—Henrietta muck, drained, 0 to 1 percent slopes
- HfbAU—Henrietta muck, undrained, 0 to 1 percent slopes
- HtbAN—Houghton muck, drained, 0 to 1 percent slopes
- HtbAU—Houghton muck, undrained, 0 to 1 percent slopes
- MfrAN—Madaus muck, drained, 0 to 1 percent slopes MfrAU—Madaus muck, undrained, 0 to 1 percent slopes
- MgcA—Maumee loamy sand, 0 to 1 percent slopes MgdAN—Martisco muck, drained, 0 to 1 percent slopes
- MhaA—Maumee loamy fine sand, 0 to 1 percent slopes
- MhbA—Maumee mucky loamy fine sand, 0 to 1 percent slopes
- MouA—Milford silty clay loam, 0 to 1 percent slopes MvhAN—Moston muck, drained, 0 to 1 percent slopes MvhAU—Moston muck, undrained, 0 to 1 percent slopes
- MwzAN—Muskego muck, drained, 0 to 1 percent slopes
- MwzAU—Muskego muck, undrained, 0 to 1 percent slopes
- PaaAN—Palms muck, drained, 0 to 1 percent slopes PaaAU—Palms muck, undrained, 0 to 1 percent slopes
- QuiA-Quinn loam, 0 to 1 percent slopes
- QujA—Quinn sandy loam, 0 to 1 percent slopes
- RenA—Rensselaer mucky loam, 0 to 1 percent slopes
- ReyA—Rensselaer loam, 0 to 1 percent slopes
- SnIA—Southwest silt loam, 0 to 1 percent slopes
- WcnAl—Waterford loam, 0 to 2 percent slopes, frequently flooded, long duration
- WrxAN—Wunabuna silt loam, drained, 0 to 1 percent slopes

The list above shows all the soils that are classified as being hydric in St. Joseph County. Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions of the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Engineering

This section provides information for planning land uses related to urban development and to waste management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, and

construction materials. The ratings are based on observed performance of the soils and on the data in the tables (USDA, National Engineering Handbook) described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 13a shows the degree and kind of soil limitations that affect dwellings with and without basements, and small commercial buildings. Table 13b shows the degree and kind of soil limitations that affect local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are

based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at a depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or to a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrinkswell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties that influence the ease of

digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to a seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to a water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained (fig. 14). Irrigation is not considered in the ratings. The ratings are based on soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonates; and sulfidic materials. Flooding, depth to water table,

ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Tables 14a and 14b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one



Figure 14.—Turf grass is produced in several areas in St. Joseph County. This turf grass is growing in an area of Coupee silt loam, 0 to 1 percent slopes.

or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the adsorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of effluent can result in the contamination of the ground water. Groundwater contamination is also a hazard if fractured

bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as a daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used in the final cover for the trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final

cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for the landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, or a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and waste-water is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and waste-water. Unfavorable soil properties can result in environmental damage.

The use of organic waste and waste-water as production resources results in the conservation of energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the waste-water to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of waste-water for irrigation, and treatment of waste-water by slow rate, overland flow, and rapid infiltration processes. Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

Tables 15a and 15b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and sand are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15a, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of gravel or sand are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains gravel or sand, the soil is rated as a probable source regardless of thickness. The assumption is that the gravel or sand layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that

the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibilty; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers

will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 15). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Representative values for texture are indicated with an asterisk. These representative values are indicative of textures that occur most commonly. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001)

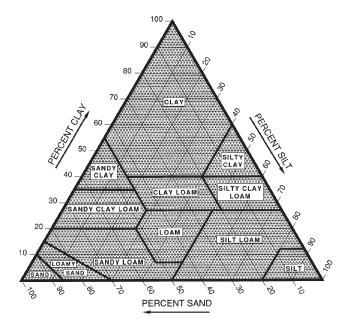


Figure 15.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000). Representative values for Unified and AASHTO are indicated with an asterisk.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and

plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 16.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Properties

Tables 17a and 17b show estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as

classes with specific effective diameter class limits. The broad classes are sand, silt, and clay ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 17a, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 17a, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 17a, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ¹/₃-bar (33 kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate

the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect the retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to dry state. It is an expression of the volume change between the water content of a clod at ¹/₃-bar tension (33 kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 17a, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 17b as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to

predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fineearth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

- 1. Coarse sands, sands, fine sands, and very fine sands.
- 2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
- 3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
- 4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
- 5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
- 6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
- 7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
- 8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size

and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Slope length is the horizontal distance from the origin of overland flow to the point where either the slope gradient decreases enough that deposition begins or runoff becomes concentrated in a defined channel. The slope length is given as a representative value (rv). Representative values are indicative of conditions that occur most commonly.

Slope gradient is the difference in elevation between two points and is expressed as a percentage of the distance between those points. For example, a difference in elevation of 1 meter over a horizontal distance of 100 meters is a slope of 1 percent. The slope gradient is given as a representative value (rv). Representative values are indicative of conditions that occur most commonly.

Chemical Properties

Table 18 shows estimates of cation-exchange capacity, effective cation-exchange capacity, soil reaction, and calcium carbonate equivalent.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases tplus aluminum expressed in term of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations (fig. 16 and fig. 17).

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to



Figure 16.—Pumps are used to drain Moston and Muskego soils in areas where these soils are in low positions on the landscape in relation to drainage outlets.

7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that

it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it is likely to occur often under normal weather conditions (the chance of ponding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture,



Figure 17.—Rensselear loam, 0 to 1 percent slopes, surrounds this stream, one of many in St. Joseph County.

density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion

of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999; Soil Survey Staff, 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that

typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Field Book for Describing and Sampling Soils" (Schoeneberger and others, 2002) and the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2003). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Abscota Series

Taxonomic classification: Mixed, mesic Oxyaquic Udipsamments

Typical Pedon for the Series

Abscota loamy sand, on a convex slope of 2 percent, in a wooded area on a flood plain at an elevation of 671 feet; Kent County, Michigan; about 2 miles south of Wyoming; 1,600 feet south and 2,500 feet east of the northwest corner of sec. 12, T. 5 N., R. 12 W.; USGS Cutlerville, Michigan, topographic quadrangle; lat. 42 degrees 50 minutes 11 seconds N. and long. 85 degrees 40 minutes 24 seconds W., NAD 27; UTM Zone 16, 608424 Easting and 4743285 Northing, NAD 83.

- A—0 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many roots; slightly acid; abrupt wavy boundary.
- Bw1—5 to 11 inches; yellowish brown (10YR 5/4) loamy sand; weak coarse subangular blocky structure; very friable; common roots; slightly acid; clear smooth boundary.
- Bw2—11 to 14 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium subangular blocky structure; very friable; common roots; slightly acid; clear smooth boundary.
- C1—14 to 28 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few roots; slightly acid; clear smooth boundary.
- C2—28 to 38 inches; pale brown (10YR 6/3) sand; single grain; loose; few roots; common coarse faint yellowish brown (10YR 5/4) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear smooth boundary.
- C3—38 to 48 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; many coarse very dark grayish brown (10YR 3/2) organic stains; slightly acid; clear smooth boundary.
- C4—48 to 52 inches; yellowish brown (10YR 5/6) sand; single grain; loose; common coarse distinct brown (10YR 5/3) iron depletions in the matrix; slightly alkaline; abrupt smooth boundary.
- C5—52 to 60 inches; dark grayish brown (10YR 4/2) sand; single grain; loose; few medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; slightly alkaline.

Range in Characteristics

Depth to redoximorphic features: 40 to more than 60 inches

Thickness of the solum: 4 to 42 inches

Other features: The upper part of the C horizon is loamy sand or loamy fine sand in some pedons; gravelly coarse sand is common below a depth of 50 inches; thin layers of very gravelly sand below a depth of 40 inches in some pedons.

A or Ap horizon:

Hue—10YR

Value—2 to 4

Chroma—1 to 3

Texture—loamy sand or fine sandy loam

Reaction—slightly acid or neutral

Content of rock fragments—0 to 10 percent

Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—2 to 6

Texture—sand, loamy fine sand, or loamy sand Reaction—slightly acid to slightly alkaline Content of rock fragments—0 to 10 percent

C horizon:

Hue-7.5YR or 10YR

Value—3 to 7

Chroma—2 to 6

Texture—fine sand, sand, coarse sand, gravelly coarse sand, or gravelly sand

Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 40 percent

Ackerman Series

Taxonomic classification: Sandy, mixed, mesic Histic Humaquepts

Typical Pedon for the Series

Ackerman muck, on a slope of less than 1 percent, in a cultivated field at an elevation of 693 feet; White County, Indiana; about 3.5 miles south of Headlee; 140 feet south and 1,000 feet west of the northeast corner of sec. 28, T. 28 N., R. 2 W.; USGS Idaville, Indiana, topographic quadrangle; lat. 40 degrees 51 minutes 13.1 seconds N. and long. 86 degrees 38 minutes 31.4 seconds W., NAD 27; UTM Zone 16, 530170 Easting and 4522574 Northing, NAD 83.

- Oap—0 to 8 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed, very dark gray (10YR 3/1) dry; less than 5 percent fiber, a trace rubbed; moderate fine granular structure; friable; about 40 percent mineral content; neutral; abrupt irregular boundary.
- Bg—8 to 14 inches; gray (5Y 5/1) coprogenous silty clay loam; moderate medium and thick platy structure; firm; many medium prominent yellowish brown (10YR 5/4) masses that have accumulated iron oxide and are in the matrix; areas of iron oxide accumulation around many root channels are strong brown (7.5YR 5/6) and many small root channels are filled with surface material;

- common cracks 1 to 2 inches wide filled with surface material; neutral; abrupt smooth boundary.
- Cg—14 to 26 inches; light brownish gray (10YR 6/2) fine sand; single grain; loose; few medium distinct brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.
- C—26 to 80 inches; brownish yellow (10YR 6/8) fine sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Combined thickness of the muck and coprogenous material: 10 to 30 inches; the muck does not exceed 16 inches thick.

Oap or Oa horizon:

Hue-10YR or N

Value—2 or 2.5

Chroma—0 or 1

Texture—muck (sapric material)

Reaction—neutral

Bg horizon:

Hue-10YR to 5Y

Value—2 to 5

Chroma—1 to 3

Texture—silt loam (coprogenous material) or silty clay loam (coprogenous material)

Reaction—moderately acid to slightly alkaline

Ca or C horizon:

Hue—10YR to 5Y

Value—5 or 6

Chroma-1 to 8

Texture—very fine sand, fine sand, sand, or loamy

sand

Reaction—neutral to strongly alkaline

Adrian Series

Taxonomic classification: Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists

Typical Pedon for the Series

Adrian muck, on a slope of less than 1 percent, under marsh vegetation at an elevation of 654 feet; Gratiot County, Michigan; about 1.5 miles southeast of Ashley; 2,040 feet north and 100 feet east of the southwest corner of sec. 16, T. 9 N., R. 1 W.; USGS Ashley, Michigan, topographic quadrangle; lat. 43 degrees 10 minutes 02.4 seconds N. and long. 84 degrees 26 minutes 50.6 seconds W., NAD 27; UTM Zone 16, 707498 Easting and 4782563 Northing, NAD 83.

- Oa1—0 to 16 inches; muck (sapric material), black (10YR 2/1) broken face, black (N 2.5/0) rubbed; about 12 percent fiber, less than 5 percent rubbed; moderate medium granular structure; mostly herbaceous fibers; neutral (pH 7.0 in water); abrupt wavy boundary.
- Oa2—16 to 20 inches; muck (sapric material), black (10YR 2/1) broken face, very dark brown (10YR 2/2) rubbed; about 15 percent fibers, less than 5 percent rubbed; weak coarse subangular blocky structure; primarily herbaceous fibers; slightly acid (pH 6.5 in water); gradual wavy boundary.
- Oa3—20 to 27 inches; muck (sapric material), black (10YR 2/1) broken face, black (10YR 2/1) rubbed; about 12 percent fibers, less than 5 percent rubbed; weak thick platy structure; mostly herbaceous fibers; moderately acid (pH 6.0 in water); gradual wavy boundary.
- Oa4—27 to 34 inches; muck (sapric material), black (10YR 2/1) broken face, black (10YR 2/1) rubbed; about 12 percent fibers, less than 5 percent rubbed; massive; mostly herbaceous fibers; strongly acid (pH 5.5 in water); abrupt smooth boundary.
- Cg1—34 to 60 inches; gray (10YR 5/1) sand; single grain; loose; common medium prominent light olive brown (2.5Y 5/4) masses that have accumulated iron oxide and are in the matrix; slightly alkaline; clear wavy boundary.
- Cg2—60 to 80 inches; dark gray (2.5Y 4/1) fine sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to C horizon: 16 to 51 inches

Organic fibers: Derived primarily from herbaceous plants but some layers contain as much as 50 percent material of woody origin

Surface tier of Oa1 or Oap horizon:

Hue-5YR to 10YR, or N

Value-2 or 2.5

Chroma-0 to 3

Texture—muck (sapric material)

Reaction—strongly acid to neutral

Subsurface and bottom tiers of Oa2, Oa3, or Oa4 horizon:

Hue-5YR to 10YR, or N

Value—2, 2.5, or 3

Chroma—0 to 3

Texture—muck (sapric material)

Reaction—strongly acid to neutral

C or Cg horizon:

Hue-5YR to 5Y, or N

Value—2 to 6

Chroma—0 to 4

Texture—sand, coarse sand, fine sand, or loamy sand or the gravelly or very gravelly analogs of these textures; strata of finer textures in some pedons

Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 60 percent

Antung Series

Taxonomic classification: Sandy, mixed, mesic Histic Humaquepts

Typical Pedon for the Series

Antung muck (fig. 18), on a slope of less than 1 percent, in a cultivated field at an elevation of 700 feet; Pulaski County, Indiana; about 1.5 miles southeast of Ripley; 2,260 feet east and 95 feet north of the southwest corner of sec. 34, T. 31 N., R. 2 W.; USGS Ripley, Indiana, topographic quadrangle; lat. 41 degrees 05 minutes 05.1 seconds N. and long. 86 degrees 37 minutes 58.3 seconds W., NAD 27; UTM Zone 16, 530837 Easting and 4548233 Northing, NAD 83.

- Oap—0 to 9 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; a trace of fiber unrubbed and rubbed; moderate medium granular structure; friable; common very fine and fine roots; neutral; abrupt smooth boundary.
- Oa—9 to 12 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; a trace of fiber unrubbed and rubbed; weak medium subangular blocky structure; friable; common very fine and fine roots; neutral; abrupt smooth boundary.
- Cg1—12 to 28 inches; light brownish gray (10YR 6/2) sand; single grain; loose; many medium faint pale brown (10YR 6/3) and few medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; slightly effervescent; moderately alkaline; clear wavy boundary.
- Cg2—28 to 48 inches; light brownish gray (10YR 6/2) sand; single grain; loose; few medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; slightly effervescent; moderately alkaline; clear wavy boundary.
- Cg3—48 to 80 inches; grayish brown (10YR 5/2) coarse sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to C horizon: 7 to 16 inches

Organic fibers: Derived primarily from herbaceous plants but some layers contain material of woody origin

Oap or Oa horizon:

Hue-10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2 (Oap); 0 to 3 (Oa)

Texture—muck (sapric material)

Reaction—slightly acid or neutral

Cg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—sand, coarse sand, fine sand, or loamy sand or the gravelly analogs of these textures Reaction—neutral to moderately alkaline Content of rock fragments—0 to 25 percent

Auten Series

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Aquollic Hapludalfs

Typical Pedon for the Series

Auten loam (fig. 19), on a slope of less than 1 percent, in a cultivated field at an elevation of 731 feet; St. Joseph County, Indiana; about 2.5 miles northwest of Lydick; 1,370 feet north and 90 feet east of the southwest corner of sec. 28, T. 38 N., R. 1 E.; USGS Lydick, Indiana, topographic quadrangle; lat. 41 degrees 42 minutes 43.5 seconds N. and long. 86 degrees 25 minutes 41.9 seconds W., NAD 27; UTM Zone 16, 547558 Easting and 4617973 Northing, NAD 83.

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) loam, brown (10YR 5/3) dry; moderate fine and medium granular structure; friable; neutral; abrupt smooth boundary.
- Bt1—9 to 18 inches; brown (10YR 5/3) clay loam; weak medium subangular blocky structure; friable; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent fine shale fragments and 3 percent gravel; neutral; gradual smooth boundary.
- Bt2—18 to 22 inches; brown (10YR 5/3) sandy loam; weak medium subangular blocky structure; friable; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent

strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; common coarse faint grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent fine shale fragments and 3 percent gravel; neutral; gradual wavy boundary.

Bg—22 to 34 inches; light brownish gray (10YR 6/2) sand; weak coarse subangular blocky structure; very friable; few medium prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent shale fragments and 2 percent gravel; moderately acid; clear wavy boundary.

BC1—34 to 40 inches; brown (10YR 5/3) loamy coarse sand; weak coarse subangular blocky structure; very friable; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent shale fragments and 2 percent gravel; moderately acid; clear wavy boundary.

BC2—40 to 75 inches; brown (10YR 5/3) loamy sand; weak coarse subangular blocky structure; very friable; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent shale fragments and 2 percent gravel; moderately acid; clear wavy boundary.

BC3—75 to 80 inches; yellowish brown (10YR 5/4) coarse sand; single grain; loose; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent shale fragments and 2 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 35 inches

Depth to carbonates: Carbonates may occur at a depth of more than 6 feet.

Ap horizon:

Hue—10YR

Value-2 or 3

Chroma—1 or 2

Texture—loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 10 percent shale or gravel

Bt horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—clay loam or sandy clay loam; a sandy loam layer less than 6 inches thick may be present in the lower part

Reaction—very strongly acid to neutral

Content of rock fragments—1 to 14 percent shale or gravel

Bg or Bw horizon:

Hue-10YR

Value—4 to 7

Chroma—1 to 4

Texture—sand, loamy sand, coarse sand, or loamy coarse sand; generally stratified Reaction—moderately acid to slightly alkaline Content of rock fragments—1 to 14 percent shale or gravel

BC or BCg horizon:

Hue-10YR

Value—4 to 7

Chroma—1 to 4

Texture—stratified sand, loamy sand, coarse sand, or loamy coarse sand or the gravelly analogs of these textures

Reaction—moderately acid to slightly alkaline Content of rock fragments—1 to 20 percent shale or gravel

Bainter Series

Taxonomic classification: Coarse-loamy, mixed, semiactive, mesic Mollic Hapludalfs

Typical Pedon for the Series

Bainter sandy loam (fig. 20), on a slope of 0.5 percent, in a cultivated field at an elevation of 843 feet; Elkhart County, Indiana; about 1.5 miles southeast of Benton; 2,520 feet north and 2,335 feet west of the southeast corner of sec. 17, T. 35 N., R. 7 E.; USGS Lake Wawasee, Indiana, topographic quadrangle; lat. 41 degrees 29 minutes 14 seconds N. and long. 85 degrees 44 minutes 25 seconds W., NAD 27; UTM Zone 16, 605161 Easting and 4593617 Northing, NAD 83.

Ap—0 to 9 inches; dark brown (10YR 3/3) sandy loam, brown (10YR 5/3) dry; weak fine and medium granular structure; very friable; common fine and medium roots throughout; common very fine and fine vesicular and tubular pores; 4 percent gravel; moderately acid; abrupt smooth boundary.

E—9 to 13 inches; 90 percent brown (10YR 4/3) and 10 percent brown (10YR 5/3) sandy loam; weak fine and medium subangular blocky structure; very friable; common fine and medium roots throughout; common very fine and fine vesicular and tubular pores; 4 percent gravel; moderately acid; clear wavy boundary.

2Bt1—13 to 22 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium and coarse

subangular blocky structure; friable; common very fine and fine roots between peds; common very fine to medium vesicular and tubular pores; few distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct dark brown (10YR 3/3) organic coatings in root channels and pores; 13 percent gravel; slightly acid; clear wavy boundary.

- 2Bt2—22 to 31 inches; brown (7.5YR 4/4) coarse sandy loam; weak and moderate fine and medium subangular blocky structure; friable; common very fine and fine roots between peds; common very fine to medium vesicular and tubular pores; common distinct brown (7.5YR 4/3) clay films on faces of peds and in pores; 11 percent gravel; neutral; clear wavy boundary.
- 2Bt3—31 to 39 inches; brown (7.5YR 4/4) gravelly coarse sandy loam; weak and moderate fine and medium subangular blocky structure; friable; common very fine and fine roots between peds; common very fine to medium vesicular and tubular pores; common distinct brown (7.5YR 4/3) clay films on faces of peds; 29 percent gravel; neutral; clear wavy boundary.
- 2Bt4—39 to 44 inches; brown (7.5YR 4/4) sandy loam; weak fine and medium subangular blocky structure; friable; common very fine and fine roots between peds; common very fine to medium vesicular and tubular pores; common distinct brown (7.5YR 4/3) and dark brown (7.5YR 3/3) clay films on faces of peds and in pores; 12 percent gravel; neutral; clear smooth boundary.
- 2Bt5—44 to 54 inches; brown (7.5YR 4/4) sandy clay loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots between peds; common very fine to medium vesicular and tubular pores; common distinct dark brown (7.5YR 3/3) clay films on faces of peds; 14 percent gravel; neutral; clear wavy boundary.
- 3C—54 to 80 inches; light yellowish brown (10YR 6/4), pale brown (10YR 6/3), and dark grayish brown (10YR 4/2) coarse sand; single grain; loose; 13 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 70 inches

Content of clay in the particle-size control section: 10 to 18 percent

Ap, A, or AB horizon: Hue—7.5YR or 10YR Value—2, 2.5, or 3 Chroma—1 to 3 Texture—sandy loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 6 percent gravel

E, EB, BE, or BA horizon:

Hue-7.5YR or 10YR

Value—4 or 5

Chroma-2 to 4

Texture—sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 6 percent gravel

2Bt horizon:

Hue-7.5YR or 10YR

Value-4 to 6

Chroma—3 to 6

Texture—sandy loam, coarse sandy loam, or sandy clay loam; the gravelly analogs of these textures may be present in the lower part Reaction—strongly acid to slightly alkaline

Content of rock fragments—3 to 14 percent gravel in the upper part and 6 to 34 percent gravel in the lower part; 0 to 5 percent cobbles

2BC horizon (where present):

Texture—loamy sand or loamy coarse sand

3C horizon:

Hue-7.5YR or 10YR

Value—4 to 7

Chroma—3 or 4

Texture—coarse sand, loamy sand, or coarse sand or the gravelly or very gravelly analogs of these textures

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—10 to 50 percent gravel; 0 to 5 percent cobbles

Baugo Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Baugo silt loam, on a slope of less than 1 percent, in a cultivated field at an elevation of 824 feet; Elkhart County, Indiana; about 2 miles south and 2 miles west of Jamestown; 1,930 feet north and 200 feet east of the southwest corner of sec. 3, T. 36 N., R. 4 E.; USGS Wakarusa, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 59 seconds N. and long. 86 degrees 03 minutes 34 seconds W., NAD 27; UTM Zone 16, 578381 Easting and 4605768 Northing, NAD 83.

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak

fine granular structure; friable; common very fine and fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; neutral; clear smooth boundary.

- Ap2—5 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; friable; common very fine and fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; neutral; abrupt smooth boundary.
- Bt—11 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; many distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- Btg1—14 to 22 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; common distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium distinct black (N 2.5/0) rounded weakly cemented iron and manganese oxide concretions; neutral; clear wavy boundary.
- Btg2—22 to 29 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; common distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; few medium distinct black (N 2.5/0) rounded masses in which iron and manganese oxide have accumulated; neutral; clear wavy boundary.
- BC—29 to 36 inches; yellowish brown (10YR 5/6) silt loam; weak coarse subangular blocky structure; firm; common fine roots throughout; common very fine to medium interstitial and tubular pores with low or moderate continuity; few medium prominent black (N 2.5/0) rounded masses in which iron and manganese oxide have accumulated; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; neutral; abrupt wavy boundary.

- 2CBg—36 to 42 inches; grayish brown (10YR 5/2) sand; weak coarse subangular blocky structure; very friable; many medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.
- 2CB—42 to 51 inches; yellowish brown (10YR 5/4) loamy sand; weak coarse subangular blocky structure; very friable; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- 2C—51 to 56 inches; brown (10YR 5/3) stratified sand and gravelly sand; single grain; loose; common medium distinct gray (10YR 5/1) iron depletions in the matrix; 20 percent gravel and 5 percent cobbles in the lower 2 inches; neutral; abrupt wavy boundary.
- 3Cd—56 to 80 inches; reddish brown (5YR 5/4) loam; massive; very firm; 3 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 25 to 50 inches

Thickness of the solum: 40 to 60 inches Depth to dense till: 50 to 70 inches Thickness of the loamy outwash: 30 to 40 inches

Ap horizon:

Hue-10YR

Value-4

Chroma—2 or 3

Texture—silt loam

Reaction—moderately acid to neutral Content of rock fragments—0 to 3 percent gravel

E, EB, or BE horizon (where present):

Hue—10YR

Value—4 or 5

Chroma-2 or 3

Texture—silt loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 3 percent gravel

Bt or Btg horizon:

Hue-7.5YR to 2.5Y

Value-4 to 6

Chroma-1 to 6

Texture—clay loam or silty clay loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 5 percent gravel

BC or BCg horizon:

Hue-7.5YR to 2.5Y

Value—4 to 6

Chroma-1 to 6

Texture—loam, silt loam, sandy loam, or fine sandy loam

Reaction—moderately acid to neutral Content of rock fragments—0 to 5 percent gravel

2CB, 2C, or Cg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma-1 to 6

Texture—loamy sand, sand, or gravelly sand; thin strata or subhorizons of sandy loam, fine sandy loam, or very fine sandy loam in some pedons Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 20 percent gravel; 0 to 5 percent cobbles

Cd horizon:

Hue—5YR, 10YR, or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—loam or fine sandy loam

Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 10 percent gravel;
0 to 1 percent cobbles or stones

Blount Series

Taxonomic classification: Fine, illitic, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Blount silt loam, on a northwest-facing, concave slope of 1 percent, in a cultivated field at an elevation of 867 feet; Mercer County, Ohio; approximately 1.25 miles east of Wabash; in Washington Township; 130 feet west and 1,880 feet south of the northeast corner of sec. 3, T. 6 S., R. 1 E.; USGS Erastus, Ohio, topographic quadrangle; lat. 40 degrees 33 minutes 35 seconds N. and long. 84 degrees 46 minutes 45 seconds W., NAD 27; UTM Zone 16, 688022 Easting and 4492260 Northing, NAD 83.

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; common roots; 3 percent gravel; slightly acid; abrupt smooth boundary.
- Btg—7 to 12 inches; grayish brown (10YR 5/2) silty clay; moderate medium subangular blocky structure; firm; common roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many distinct yellowish brown (10YR 5/4) masses that have accumulated iron oxide, have clear boundaries, and are in the matrix; common distinct light gray (10YR 7/1) clay depletions on

- vertical faces of peds; 3 percent gravel; strongly acid; clear wavy boundary.
- Bt—12 to 23 inches; dark yellowish brown (10YR 4/4) clay; weak fine and medium prismatic structure parting to moderate medium subangular blocky; firm; few roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide, have diffuse boundaries, and are in the matrix; many medium distinct dark grayish brown (10YR 4/2) and common distinct gray (10YR 5/1) iron depletions with clear boundaries in the matrix; 4 percent gravel; slightly acid; clear wavy boundary.
- BCg—23 to 30 inches; grayish brown (10YR 5/2) silty clay loam; weak medium subangular blocky structure; firm; few faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct light gray (10YR 7/2) calcium carbonate coatings on vertical faces of peds; many medium distinct dark yellowish brown (10YR 4/4) and common prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide, have clear boundaries, and are in the matrix; 8 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- CBd—30 to 42 inches; brown (10YR 4/3) clay loam; weak medium platy structure; very firm; common distinct white (10YR 8/1) calcium carbonate coatings on faces of plates; common faint grayish brown (10YR 5/2) iron depletions with diffuse boundaries in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Cd1—42 to 54 inches; brown (10YR 5/3) clay loam; massive, with widely spaced vertical fractures; very firm; common distinct light gray (10YR 7/1) calcium carbonate coatings on faces of fractures; few distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and have clear boundaries; few distinct dark gray (10YR 4/1) iron depletions with diffuse boundaries in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Cd2—54 to 80 inches; brown (10YR 4/3) clay loam; massive; very firm; few prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and have clear boundaries; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 45 inches

Thickness of the solum: 30 to 60 inches

Depth to dense till: 30 to 60 inches Depth to carbonates: 19 to 40 inches

Content of clay in the particle-size control section: 35

to 45 percent

Kind of rock fragments: Predominantly igneous,

limestone, or dolostone gravel

Ap horizon:

Hue—10YR

Value—3 or 4, 6 or more dry

Chroma—1 to 3

Texture—silt loam or loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 5 percent

A horizon (where present):

Hue—10YR

Value—2 or 3, 4 or 5 dry

Chroma—1 or 2

Texture—silt loam or loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 5 percent Thickness of the horizon—less than 5 inches

E horizon (where present):

Hue—10YR or 2.5Y

Value—4 or 5

Chroma—1 to 3

Thickness of the horizon—3 to 6 inches

BE or EB horizon (where present):

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—silty clay loam; less commonly silt loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 10 percent Thickness of the horizon—3 to 6 inches

Bt or Btg horizon:

Hue-10YR or 2.5Y

Value-4 to 6

Chroma—1 to 4

Texture—silty clay loam, clay loam, clay, or silty

Reaction—very strongly acid to slightly acid in the upper part; moderately acid to slightly alkaline in the lower part

Content of rock fragments—2 to 10 percent

BCg or BC horizon:

. Hue—10YR to 5Y

Value—4 to 6

Chroma-1 to 6

Texture—silty clay loam, clay loam, or silty clay Reaction—slightly acid to moderately alkaline Content of rock fragments—2 to 14 percent

CBd, CBdg, Cdg, or Cd horizon:

Hue—10YR to 5Y

Value-4 to 6

Chroma-1 to 4

Texture—silty clay loam or clay loam

Reaction—slightly alkaline or moderately alkaline

Content of rock fragments—2 to 14 percent;

typically above 5 percent

Brady Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Aquollic Hapludalfs

Typical Pedon for the Series

Brady sandy loam, on a slope of 1 percent, in a cultivated field at an elevation of 891 feet; Eaton County, Michigan; about 3 miles southwest of Charlotte; 500 feet north and 800 feet east of the center of sec. 33, T. 2 N., R. 5 W.; USGS Chester, Michigan, topographic quadrangle; lat. 42 degrees 31 minutes 08.0 seconds N. and long. 84 degrees 54 minutes 08.4 seconds W., NAD 27; UTM Zone 16, 672308 Easting and 4709525 Northing, NAD 83.

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) sandy loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.
- E—9 to 13 inches; grayish brown (10YR 5/2) sandy loam; weak coarse granular structure; friable; few fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear wavy boundary.
- BE—13 to 23 inches; brown (10YR 5/3) sandy loam; weak coarse subangular blocky structure; friable; many medium distinct gray (10YR 5/1) iron depletions in the matrix; moderately acid; clear wavy boundary.
- Bt—23 to 37 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds and bridges between sand grains; very dark grayish brown (10YR 3/2) sandy loam wormcasts and fillings in root channels; prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; many medium distinct gray (10YR 5/1) iron depletions in the matrix; about 6 percent gravel; moderately acid; abrupt irregular boundary.
- BC—37 to 56 inches; brown (7.5YR 4/4) loamy sand; weak coarse subangular blocky structure; very friable; few discontinuous brown (7.5YR 4/4) sandy loam layers 1/8 inch to 2 inches thick; prominent

yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; few medium prominent gray (10YR 5/1) iron depletions in the matrix; neutral; abrupt irregular boundary.

2C—56 to 80 inches; brown (10YR 5/3) gravelly coarse sand and coarse sand; single grain; loose; common medium distinct gray (10YR 5/1) iron depletions in the matrix; about 15 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 34 to 56 inches

Depth to carbonates: 40 to 70 inches

Ap horizon:

Hue—7.5YR or 10YR

Value-2, 2.5, or 3

Chroma—1 to 3

Texture—sandy loam or fine sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 14 percent

E or BE horizon:

Hue—10YR

Value-5 or 6

Chroma—2 to 4

Texture—sandy loam, fine sandy loam, loamy fine sand, or loamy sand; less commonly loam or silt loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 14 percent

Bt horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-3 to 6

Texture—sandy loam or gravelly sandy loam; less commonly sandy clay loam, gravelly sandy clay loam, or clay loam; sandy clay loam or clay loam in pedons less than 8 inches thick

Reaction—strongly acid to neutral

Content of rock fragments—0 to 25 percent

BC horizon:

Hue-7.5YR or 10YR

Value—4 to 7

Chroma-2 to 6

Texture—sandy loam or loamy sand or the gravelly analogs of these textures

Reaction—strongly acid to neutral

Content of rock fragments—0 to 25 percent

2C horizon:

Hue—10YR

Value—4 to 6

Chroma—1 to 4

Texture—gravelly coarse sand, coarse sand, sand, gravelly sand, very gravelly sand, or stratified coarse sand and gravel
Reaction—neutral to moderately alkaline
Content of rock fragments—10 to 55 percent

Brems Series

Taxonomic classification: Mixed, mesic Aquic Udipsamments

Typical Pedon for the Series

Brems loamy sand, in a nearly level area in a cultivated field at an elevation of 777 feet; Elkhart County, Indiana; 2 miles north of Elkhart; 1,920 feet west and 830 feet north of the southeast corner of sec. 10, T. 38 N., R. 5 E.; USGS Elkhart, Indiana, topographic quadrangle; lat. 41 degrees 45 minutes 20 seconds N. and long. 85 degrees 56 minutes 06 seconds W., NAD 27; UTM Zone 16, 588538 Easting and 4623190 Northing, NAD 83.

- Ap—0 to 9 inches; dark brown (10YR 3/3) loamy sand, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; common very fine and fine roots throughout; slightly acid; abrupt smooth boundary.
- Bw1—9 to 18 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; very friable; few very fine and fine roots throughout; few fine tubular pores; moderately acid; gradual wavy boundary.
- Bw2—18 to 27 inches; strong brown (7.5YR 4/6) loamy sand; weak fine subangular blocky structure; very friable; few very fine and fine roots throughout; few fine tubular pores; strongly acid; clear wavy boundary.
- Bw3—27 to 33 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; few medium distinct brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; few medium distinct dark brown (7.5YR 3/4) weakly cemented masses in which iron and manganese oxide have accumulated throughout; common fine prominent brown (10YR 5/3) iron depletions in the matrix; very strongly acid; clear wavy boundary.
- Bw4—33 to 46 inches; yellowish brown (10YR 5/6) sand; single grain; loose; common coarse distinct brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; few medium distinct dark brown (7.5YR 3/4) weakly cemented masses in which iron and manganese oxide have accumulated throughout; common fine prominent

light brownish gray (10YR 6/2) and distinct pale brown (10YR 6/3) iron depletions in the matrix; very strongly acid; clear wavy boundary.

Bw5—46 to 56 inches; yellowish brown (10YR 5/4 and 5/6) sand; single grain; loose; common coarse faint brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; few medium distinct dark brown (7.5YR 3/4) weakly cemented masses in which iron and manganese oxide have accumulated throughout; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bw6—56 to 66 inches; yellowish brown (10YR 5/4 and 5/6) sand; single grain; loose; many medium distinct strong brown (7.5YR 4/6) masses that have accumulated iron oxide and are in the matrix; few medium distinct dark brown (7.5YR 3/4) weakly cemented masses in which iron and manganese oxide have accumulated throughout; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bw7—66 to 72 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common fine distinct strong brown (7.5YR 4/6) masses that have accumulated iron oxide and are in the matrix; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

BC—72 to 80 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 80 inches Depth to redoximorphic features: Below a depth of 24 inches

Content of rock fragments: 0 to 10 percent throughout the series control section

Content of medium and coarser sand in the particlesize control section: More than 25 percent

Ap or A horizon:

Hue-10YR

Value—3 to 5

Chroma-2 to 4

Texture—loamy sand or loamy fine sand Reaction—strongly acid to neutral depending upon liming history

E horizon (where present):

Hue—10YR

Value—5 or 6

Chroma—3 or 4

Texture—loamy sand, loamy fine sand, sand, or fine sand

Reaction—strongly acid to neutral depending upon liming history

Bw horizon:

Hue—7.5YR or 10YR

Value—4 to 6

Chroma-3 to 8

Texture—loamy sand, loamy fine sand, sand, or fine sand

Reaction—very strongly acid to moderately acid

BC or C horizon (where present):

Hue—10YR or 2.5Y

Value—5 to 7

Chroma—2 to 6

Texture—loamy sand, sand, loamy fine sand, or fine sand

Reaction—strongly acid to slightly acid

Brookston Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Brookston loam, on a concave slope of 1 percent, in a cultivated field at an elevation of 865 feet; Elkhart County, Indiana; about 2 miles north and 0.5 mile east of Nappanee; 1,257 feet north and 2,238 feet east of the southwest corner of sec. 18, T. 35 N., R. 5 E.; USGS Nappanee East, Indiana, topographic quadrangle; lat. 41 degrees 28 minutes 57 seconds N. and long. 85 degrees 59 minutes 44 seconds W., NAD 27; UTM Zone 16, 583856 Easting and 4592814 Northing, NAD 83.

Ap1—0 to 5 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with low continuity; 1 percent gravel; neutral; abrupt smooth boundary.

Ap2—5 to 9 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; weak coarse granular structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with low continuity; 1 percent gravel; slightly acid; abrupt smooth boundary.

Btg1—9 to 16 inches; very dark gray (10YR 3/1) clay loam, dark gray (10YR 4/1) dry; moderate medium

subangular blocky structure; friable; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with moderate continuity; common faint very dark gray (10YR 3/1) clay films on faces of peds; 1 percent gravel; neutral; clear wavy boundary.

Btg2—16 to 25 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with moderate continuity; many faint dark gray (10YR 4/1) clay films on faces of peds; common fine and medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; 1 percent gravel; neutral; clear wavy boundary.

Btg3—25 to 38 inches; grayish brown (10YR 5/2) clay loam; weak medium prismatic structure; firm; common very fine and fine roots between peds; common very fine and fine interstitial and tubular pores with moderate continuity; many distinct dark gray (10YR 4/1) clay films on faces of peds; many fine and medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; about 30 percent sand; 2 percent gravel; neutral; gradual wavy boundary.

Bt—38 to 48 inches; brown (10YR 5/3) loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; many distinct gray (10YR 5/1) clay films on faces of peds; many fine and medium faint dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; about 47 percent sand; 2 percent gravel; slightly alkaline; gradual wavy boundary.

BC1—48 to 58 inches; dark yellowish brown (10YR 4/4) loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; many distinct gray (10YR 5/1) clay films on vertical faces of peds; many fine and medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent gravel; slightly alkaline; gradual wavy boundary.

BC2—58 to 68 inches; dark yellowish brown (10YR 4/4) loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; many distinct gray (10YR 5/1) clay films on vertical faces of peds; many fine and medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent on prism faces; slightly effervescent within prisms; 1 percent gravel; moderately alkaline; gradual wavy boundary.

C—68 to 80 inches; yellowish brown (10YR 5/4) loam;

massive; firm; few distinct gray (10YR 6/1) carbonate coatings in cracks; 1 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 30 to 70 inches

Depth to carbonates: 40 to 70 inches
Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the silty material: 0 to 20 inches
Particle-size control section: 25 to 35 percent clay; 15
to 40 percent fine sand or coarser; less than 60
percent medium sand or coarser in the sand
fraction

Ap or A horizon:

Hue-10YR

Value—2 or 3

Chroma—1 or 2

Texture—loam

Reaction—slightly acid or neutral

Content of rock fragments—0 to 5 percent

BA or AB horizon (where present):

Texture—silt loam

Btg or Bt horizon:

Hue—10YR to 5Y, or N

Value—4 to 6; 3 in the horizon immediately below the A horizon in some pedons

Chroma-0 to 6

Texture—silty clay loam, clay loam, or loam Reaction—slightly acid to slightly alkaline Content of rock fragments—0 to 11 percent

BC or BCg horizon:

Hue-10YR to 5Y, or N

Value—4 to 7

Chroma-0 to 4

Texture—loam or fine sandy loam

Reaction—slightly acid in the upper part; moderately alkaline in the lower part

Content of rock fragments—0 to 11 percent

C or Cg horizon:

Hue-10YR to 5Y, or N

Value—4 to 7

Chroma-0 to 4

Texture—loam or fine sandy loam

Reaction—slightly alkaline or moderately alkaline

Content of rock fragments—0 to 11 percent

Cohoctah Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Fluvaquentic Endoaquolls

Typical Pedon for the Series

Cohoctah loam, on a slope of less than 1 percent, in a wooded area at an elevation of 620 feet; Ottawa County, Michigan; about 4.5 miles east of Pearline; 2,440 feet east and 320 feet north of the southwest corner of sec. 22, T. 7 N., R. 13 W.; USGS Grandville, Michigan, topographic quadrangle; lat. 42 degrees 58 minutes 25.8 seconds N. and long. 85 degrees 50 minutes 07.35 seconds W., NAD 27; UTM Zone 16, 594963 Easting and 4758570 Northing, NAD 83.

- A—0 to 13 inches; very dark gray (10YR 3/1) loam, gray (10YR 5/1) dry; weak medium granular structure; friable; slightly alkaline; clear smooth boundary.
- Bg1—13 to 21 inches; dark gray (10YR 4/1) sandy loam; weak coarse subangular blocky structure; friable; many medium distinct very dark brown (10YR 2/2) organic stains on vertical faces of peds; slightly alkaline; clear smooth boundary.
- Bg2—21 to 33 inches; grayish brown (10YR 5/2) fine sandy loam; weak coarse subangular blocky structure; friable; many fine prominent yellowish red (5YR 5/6) masses in which iron oxide has accumulated throughout; strongly effervescent; moderately alkaline; abrupt smooth boundary.
- Bg3—33 to 40 inches; very dark grayish brown (10YR 3/2) loam; weak coarse subangular blocky structure; friable; few fine faint gray (10YR 5/1) iron depletions throughout; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- Bg4—40 to 56 inches; grayish brown (10YR 5/2) sandy loam; weak coarse subangular blocky structure; friable; common medium prominent yellowish brown (10YR 5/8) masses in which iron oxide has accumulated throughout; strongly effervescent; moderately alkaline; clear smooth boundary.
- 2Cg1—56 to 72 inches; gray (10YR 5/1) sand; single grain; loose; strongly effervescent; moderately alkaline; clear wavy boundary.
- 2Cg2—72 to 80 inches; dark gray (10YR 4/1) coarse sand; single grain; loose; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches Particle-size control section: The percent of silt plus twice the percent of clay averages more than 30 percent.

A horizon:

Hue—10YR Value—2 or 3 Chroma—1 or 2 Texture—loam
Reaction—slightly acid to slightly alkaline

Bg or Ab horizon (where present):

Hue-10YR to 5Y, or N

Value—2 to 6

Chroma-0 to 4

Texture—sandy loam, fine sandy loam, loamy fine sand, or loam or the mucky analogs of these textures; thin layers or lenses of sand, fine sand, loamy sand, loamy fine sand, or silt loam in some pedons

Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 10 percent

Cg or Ab horizon (where present):

Hue-10YR to 5Y, or N

Value—2 to 6

Chroma-0 to 2

Texture—fine sand, loamy sand, loamy fine sand, sand, or coarse sand; thin strata of sandy loam, fine sandy loam, loam, or silt loam

Poaction slightly alkaline or moderately alkaline

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 10 percent

Coloma Series

Taxonomic classification: Mixed, mesic Lamellic Udipsamments

Typical Pedon for MLRA 98

Coloma sand, 2 to 5 percent slopes, in a tree nursery field at an elevation of 804 feet; Elkhart County, Indiana; approximately 1.25 miles south and 0.25 mile west of Vistula; 900 feet east and 1,050 feet north of the southwest corner of sec. 21, T. 38 N., R. 7 E.; USGS Middlebury, Indiana, topographic quadrangle; lat. 41 degrees 43 minutes 43 seconds N. and long. 85 degrees 44 minutes 02 seconds W., NAD 27; UTM Zone 16, 605301 Easting and 4620425 Northing, NAD 83.

- Ap—0 to 12 inches; brown (10YR 4/3) sand, brown (10YR 5/3) dry; weak fine granular structure; very friable; many fine and medium roots throughout; 1 percent gravel; neutral; abrupt smooth boundary.
- Bw1—12 to 27 inches; yellowish brown (10YR 5/6) sand; weak fine granular structure; very friable; common fine to coarse roots throughout; 1 percent gravel; neutral; gradual wavy boundary.
- Bw2—27 to 37 inches; brownish yellow (10YR 6/6) sand; single grain; loose; common fine and medium roots throughout; 1 percent gravel; neutral; clear wavy boundary.
- Bw3—37 to 47 inches; brownish yellow (10YR 6/6) sand; single grain; loose; common fine and

medium roots throughout; neutral; clear wavy boundary.

E and Bt—47 to 80 inches; light yellowish brown (10YR 6/4) sand (E); single grain; loose; several wavy and discontinuous brown (7.5YR 4/4) loamy sand lamellae (Bt) 1/8 to 1/2 inch thick and having a combined thickness of approximately 31/2 inches; weak medium subangular blocky structure; very friable; common fine roots throughout; slightly acid

Range in Characteristics

Depth to the first lamellae: 20 to 60 inches Combined thickness of the lamellae: Less than 6 inches to a depth of 80 inches

Particle-size control section: Less than 50 percent fine sand; 25 percent or more medium, coarse, and very coarse sand

Content of rock fragments: 0 to 14 percent gravel and 0 to 5 percent cobbles throughout

Ap horizon:

Hue-7.5YR or 10YR

Value—3 or 4

Chroma—2 or 3

Texture—sand

Reaction—very strongly acid to neutral

A horizon (where present):

Hue—7.5YR or 10YR

Value—2 to 4

Chroma—1 to 3

Texture—sand

Reaction—very strongly acid to neutral

Bw horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-4 to 6

Texture—Dominantly sand or loamy sand; subhorizons of fine sand or loamy fine sand in some pedons

Reaction—very strongly acid to neutral

E part of the E and Bt horizon:

Hue—5YR to 10YR

Value—4 to 7

Chroma-3 to 6

Texture—loamy sand; less commonly sandy loam or sand

Reaction—very strongly acid to moderately acid in the upper part; strongly acid to neutral in the lower part

Bt part of the E and Bt horizon:

Hue—5YR to 10YR

Value—3 to 5

Chroma-3 to 6

Texture—loamy sand; less commonly sandy loam or sand

Reaction—very strongly acid to moderately acid in the upper part; strongly acid to neutral in the lower part

C horizon (where present):

Hue-5YR to 10YR

Value—4 to 7

Chroma—3 to 6

Texture—sand

Reaction—strongly acid to neutral

Coupee Series

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for the Series

Coupee silt loam, on a convex 1 percent slope, in a cultivated field at an elevation of 745 feet; St. Joseph County, Indiana; about 3 miles east and 0.5 mile north of New Carlisle; 1,620 feet west and 1,440 feet south of northeast corner of sec. 30, T. 38 N., R. 1 E.; USGS Lydick, Indiana, topographic quadrangle; lat. 41 degrees 43 minutes 08.02 seconds N. and long. 86 degrees 27 minutes 14.21 seconds W., NAD 27; UTM Zone 16, 545410 Easting and 4618712 Northing, NAD 83.

- Ap—0 to 10 inches; black (10YR 2/1) silt loam, very dark brown (10YR 2/2) crushed, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; neutral; abrupt smooth boundary.
- A—10 to 14 inches; black (10YR 2/1) silt loam, very dark brown (10YR 2/2) crushed, very dark grayish brown (10YR 3/2) dry; moderate medium granular structure; friable; moderately acid; clear wavy boundary.
- E—14 to 21 inches; brown (10YR 5/3) silt loam; moderate medium and fine subangular blocky structure; friable; many very fine pores with moderate continuity; common distinct very dark brown (10YR 2/2) organic coatings in pores and old root channels; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; strongly acid; clear wavy boundary.
- Bt1—21 to 26 inches; brown (10YR 4/3) clay loam; moderate medium subangular blocky structure; firm; common very fine pores with moderate continuity; common faint dark brown (10YR 3/3) clay films on faces of peds; common distinct very dark grayish brown (10YR 3/2) organic coatings in pores and old root channels; few fine and medium

gravel ½ inch or less in diameter; moderately acid; clear wavy boundary.

Bt2—26 to 33 inches, dark yellowish brown (10YR 4/4) clay loam; moderate coarse and medium subangular blocky structure; firm; few fine pores with moderate continuity; common faint brown (10YR 4/3) clay films on faces of peds; common distinct dark brown (10YR 3/3) organic coatings in pores; few medium gravel about ½ inch in diameter; moderately acid; clear wavy boundary.

- 2Bt3—33 to 52 inches; brown (7.5YR 4/4) stratified loamy sand, sand, and coarse sand; weak coarse subangular blocky structure and single grain; very friable and loose; few distinct very dark grayish brown (10YR 3/2) clay films on gravel and bridges between sand grains in the upper part; 15 percent gravel and shale fragments; strongly acid; clear wavy boundary.
- 2C—52 to 98 inches; stratified pale brown (10YR 6/3) fine sand, sand, and very channery sand (50 percent hard fine shale fragments); below 72 inches material is banded light brownish gray (10YR 6/2) sand and brown (7.5YR 4/4) loamy sand containing about 8 percent shale fragments; single grain; loose; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to contrasting material: 30 to 40 inches

Content of rock fragments: Less than 5 percent gravel and shale in some horizons; as much as 25 percent in others

Series control section: Sand fraction throughout the solum is dominantly medium and coarser

Content of clay in the particle-size control section: 18 to 30 percent

Other features: Some pedons have an EB or an A and B horizon. Some pedons have a 2BC horizon.

Ap or A horizon:

Hue—10YR

Value-2 or 3

Chroma—1 to 3

Texture—silt loam

Reaction—strongly acid to neutral

E horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma—3 or 4

Texture—silt loam or loam; less commonly sandy

Reaction—strongly acid to neutral

Bt horizon:

Hue-7.5YR or 10YR

Value—2 to 5

Chroma—3 or 4

Texture—loam, sandy clay loam, or clay loam Reaction—very strongly acid to moderately acid

2Bt horizon:

Hue-7.5YR or 10YR

Value—2 to 5

Chroma—3 or 4

Texture—loamy sand or sand

Reaction—very strongly acid to moderately acid

2C horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-3 to 6

Texture—stratified sand, channery sand, loamy sand, or channery loamy sand

Reaction—very strongly acid to moderately acid

Crosier Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Crosier loam, on a slope of 1 percent, in a cultivated field at an elevation of 852 feet; St. Joseph County, Indiana; about 1.5 miles north and 1.25 miles east of Woodland; 280 feet south and 560 feet east of the northwest corner of sec. 11, T. 36 N., R. 3 E.; USGS Wyatt, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 34.38 seconds N. and long. 86 degrees 09 minutes 21.28 seconds W., NAD 27; UTM Zone 16, 570349 Easting and 4604926 Northing, NAD 83.

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; 1 percent gravel; neutral; abrupt smooth boundary.
- Eg—8 to 11 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; common medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common distinct light gray (10YR 7/1) clay depletions on faces of peds; 1 percent gravel; slightly acid; clear smooth boundary.
- Btg—11 to 20 inches; grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; 5 percent gravel; slightly acid; gradual wavy boundary.

- Bt—20 to 30 inches; brown (10YR 5/3) clay loam; moderate coarse subangular blocky structure; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; gradual wavy boundary.
- BC—30 to 38 inches; brown (10YR 5/3) loam; moderate coarse subangular blocky structure; friable; common distinct dark gray (10YR 4/1) clay films on faces of peds and in pores; common prominent gray (10YR 6/1) carbonate accumulations on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; 3 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.
- Cd—38 to 80 inches; brown (10YR 5/3) loam; weak very coarse prismatic structure; very firm; few prominent gray (10YR 6/1) carbonates on vertical faces of peds; few medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are along vertical faces of prisms; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 24 to 40 inches

Depth to carbonates: 20 to 40 inches

Particle-size control section: 20 to 34 percent clay; 30 to 60 percent sand

Ap or A horizon:

Hue—10YR

Value—3 to 5, 6 or more dry

Chroma-2 or 3

Texture—loam or fine sandy loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 5 percent

Eg or BEg horizon:

Hue—10YR

Value—5 or 6

Chroma—1 or 2

Texture—loam, silt loam, fine sandy loam, or sandy loam

Reaction—moderately acid to neutral Content of rock fragments—0 to 5 percent

Btg or Bt horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—clay loam, sandy clay loam, or loam Reaction—strongly acid to neutral Content of rock fragments—0 to 5 percent

BC or CB horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—loam, fine sandy loam, or sandy loam Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 10 percent gravel; 0 to 1 percent cobbles or stones

Cd horizon:

Hue-10YR or 2.5Y

Value—5 or 6

Chroma-2 to 6

Texture—loam, fine sandy loam, or sandy loam Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 10 percent gravel; 0 to 1 percent cobbles or stones

Crumstown Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Crumstown fine sandy loam (fig. 21), on a north-facing slope of 2 percent, in a cultivated field at an elevation of 827 feet; St. Joseph County, Indiana; about 4 miles north of Lake of the Woods; 1,520 feet east and 200 feet south of the northwest corner of sec. 18, T. 35 N., R. 3 E.; USGS Bremen, Indiana, topographic quadrangle; lat. 41 degrees 29 minutes 32.6 seconds N. and long. 86 degrees 13 minutes 42.1 seconds W., NAD 27; UTM Zone 16, 564411 Easting and 4593713 Northing, NAD 83.

- Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; 2 percent gravel; neutral; abrupt smooth boundary.
- Bt1—9 to 19 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; many faint brown (10YR 4/3) clay films on faces of peds; 3 percent gravel; moderately acid; clear wavy boundary.
- Bt2—19 to 26 inches; dark yellowish brown (10YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; common faint brown (10YR 4/3) clay bridges between sand grains and gravel; 2 percent gravel; strongly acid; clear wavy boundary.

Bt3—26 to 35 inches; dark yellowish brown (10YR 4/4)

- loamy sand; weak coarse subangular blocky structure; very friable; few faint brown (10YR 4/3) clay bridges between sand grains and gravel; 10 percent gravel; strongly acid; clear wavy boundary.
- Bt4—35 to 45 inches; dark yellowish brown (10YR 4/6) sand; weak coarse subangular blocky structure; very friable; few faint brown (10YR 4/3) clay bridges between sand grains and gravel; 5 percent gravel; strongly acid; clear wavy boundary.
- BC1—45 to 70 inches; brown (10YR 4/3) loamy sand; weak coarse subangular blocky structure; very friable; common fine prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent gravel; moderately acid; clear wavy boundary.
- BC2—70 to 100 inches; yellowish brown (10YR 5/4) fine sand; weak coarse subangular blocky structure; very friable; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent gravel; moderately acid.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 50 inches

Thickness of the solum: 40 to more than 80 inches Depth to carbonates: 40 to more than 80 inches Depth to redoximorphic features: 40 to 80 inches Content of clay in the particle-size control section: 10 to 18 percent

Ap horizon:

Hue—7.5YR or 10YR

Value—3 to 5, 6 or more dry

Chroma-2 or 3

Texture—fine sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—1 to 10 percent

Bt horizon:

Hue—7.5YR or 10YR

Value-4 or 5

Chroma—4 to 6

Texture—sandy loam, gravelly sandy loam, fine sandy loam, loamy sand, or sand; coarse sandy loam or gravelly coarse sandy loam in the lower part in some pedons

Reaction—strongly acid to slightly acid in the upper part; strongly acid to neutral in the lower part

Content of rock fragments—1 to 30 percent

BC horizon:

Hue-7.5YR or 10YR

Value—4 or 5

Chroma-2 to 6

Texture—loamy sand, sandy loam, gravelly loamy sand, gravelly sandy loam, sand, or fine sand Reaction—moderately acid to neutral Content of rock fragments—1 to 30 percent

Del Rey Series

Taxonomic classification: Fine, illitic, mesic Aeric Epiaqualfs

Typical Pedon for MLRA 111

Del Rey silty clay loam, 0 to 1 percent slopes, in a cultivated field at an elevation of 797 feet; Elkhart County, Indiana; about 3.25 miles south and 2 miles west of Dunlap; 1,000 feet south and 282 feet west of the northeast corner of sec. 9, T. 36 N., R. 5 E.; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 28 seconds N. and long. 85 degrees 56 minutes 46 seconds W., NAD 27; UTM Zone 16, 587837 Easting and 4604921 Northing, NAD 83.

- Ap1—0 to 6 inches; brown (10YR 4/3) silty clay loam; weak medium granular structure; friable; common very fine and fine roots throughout; common fine interstitial and tubular pores with moderate continuity; neutral; abrupt smooth boundary.
- Ap2—6 to 9 inches; brown (10YR 4/3) silty clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; common fine interstitial and tubular pores with moderate continuity; neutral; clear wavy boundary.
- Bt1—9 to 12 inches; yellowish brown (10YR 5/6) silty clay; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with low continuity; common distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent gray (10YR 5/1) iron depletions throughout; neutral; clear wavy boundary.
- Bt2—12 to 22 inches; yellowish brown (10YR 5/4) silty clay; moderate medium subangular blocky structure; firm; common fine roots throughout; common very fine and fine interstitial and tubular pores with low continuity; few distinct grayish brown (10YR 5/2) and dark gray (10YR 4/1) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions throughout; neutral; clear wavy boundary.
- Bt3—22 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots throughout; common very fine and fine interstitial and tubular

pores with low continuity; few distinct gray (10YR 5/1) and dark gray (10YR 4/1) clay films on faces of peds; many medium distinct grayish brown (10YR 5/2) iron depletions throughout; neutral; clear wavy boundary.

- BC—26 to 33 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; common very fine roots in cracks; common very fine interstitial and tubular pores with low continuity; few distinct gray (10YR 5/1) clay films on faces of peds; few distinct white (10YR 8/1) carbonate coatings on vertical faces of peds; few medium irregular white (10YR 8/1) carbonate nodules throughout; many medium prominent grayish brown (10YR 5/2) iron depletions throughout; strongly effervescent; moderately alkaline; clear wavy boundary.
- C1—33 to 48 inches; yellowish brown (10YR 5/6) silty clay loam; weak very coarse prismatic structure; very firm; common very fine roots in cracks; common very fine interstitial and tubular pores with low continuity; few distinct gray (10YR 5/1) clay films on faces of peds; few distinct white (10YR 8/1) carbonate coatings on vertical faces of peds; few medium irregular white (10YR 8/1) carbonate nodules throughout; many medium prominent grayish brown (10YR 5/2) iron depletions throughout; strongly effervescent; moderately alkaline; clear wavy boundary.
- C2—48 to 66 inches; yellowish brown (10YR 5/4) silty clay loam; weak very coarse prismatic structure; very firm; few distinct gray (10YR 6/1) carbonate coatings on vertical faces of peds; few medium irregular white (10YR 8/1) carbonate nodules throughout; common medium distinct grayish brown (10YR 5/2) iron depletions throughout; strongly effervescent; slightly alkaline; clear wavy boundary.
- C3—66 to 82 inches; yellowish brown (10YR 5/6) silty clay loam; massive; firm; many medium prominent gray (10YR 5/1) iron depletions throughout; strongly effervescent; moderately alkaline; clear wavy boundary.
- Cg—82 to 90 inches; gray (10YR 5/1) silty clay loam; massive; firm; many medium prominent yellowish brown (10YR 5/6) masses in which iron oxide has accumulated throughout; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 48 inches

Content of clay in the particle-size control section: 35

to 45 percent

Other features: The lower part of the B horizon is stratified in some pedons; some strata are silt loam.

Ap or A horizon:

Hue-10YR

Value—3 or 4

Chroma-1 to 3

Texture—silty clay loam

Reaction—very strongly acid to neutral

E or BE horizon (where present):

Hue—10YR

Value-4 to 6

Chroma—1 to 3

Reaction—very strongly acid to neutral

Bt, Btg, BC, BCtg, or BCt horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma—1 to 6 (Bt or Btg); 1 to 8 (BC, BCtg, or BCt)

Texture—silty clay loam or silty clay

Reaction—very strongly acid to neutral in the Bt or Btg horizon; slightly alkaline or moderately alkaline in the BC, BCtg, or BCt horizon

Cg or C horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma-1 to 8

Texture—silt loam or silty clay loam several feet thick; stratified silt loam, silty clay loam, clay loam, sandy loam, sand, or silty clay in some pedons

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 2 percent

Edselton Series

Taxonomic classification: Marly, euic, mesic Limnic Haplosaprists

Typical Pedon for the Series

Edselton muck, drained, on a slope of less than 1 percent, under grass vegetation at an elevation of 698 feet; Pulaski County, Indiana; about 2 miles west and 2.5 miles south of Star City; 2,530 feet east and 2,465 feet south of the northwest corner of sec. 25, T. 29 N., R. 2 W.; USGS Star City, Indiana, topographic quadrangle; lat. 40 degrees 56 minutes 00.1 second N. and long. 86 degrees 35 minutes 39.3 seconds W., NAD 27; UTM Zone 16, 534158 Easting and 4531441 Northing, NAD 83.

Oap—0 to 10 inches; muck (sapric material), black (N

- 2.5/0) broken face and rubbed; a trace of fiber rubbed and unrubbed; moderate medium granular structure; friable; common very fine and fine roots; neutral; abrupt smooth boundary.
- Oa—10 to 21 inches; muck (sapric material), very dark brown (10YR 2/2) broken face and rubbed; about 3 percent fiber, a trace rubbed; moderate medium platy structure; friable; common very fine and fine roots; neutral; clear smooth boundary.
- Lma1—21 to 28 inches; grayish brown (2.5Y 5/2) marly silt loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.
- Lma2—28 to 34 inches; light brownish gray (2.5Y 6/2) marly silt loam; massive; friable; many coarse prominent light yellowish brown (10YR 6/4) masses that have accumulated iron oxide and are in the matrix; common medium faint light gray (2.5Y 7/1) iron depletions in the matrix; violently effervescent; moderately alkaline; clear wavy boundary.
- Lma3—34 to 44 inches; gray (N 5/0) marly silt loam; massive; friable; common medium prominent light olive brown (2.5Y 5/4) masses that have accumulated iron oxide and are in the matrix; strongly effervescent; moderately alkaline; clear wavy boundary.
- Lma4—44 to 48 inches; gray (N 5/0) marly silt loam; massive; friable; few medium prominent light olive brown (2.5Y 5/3) masses that have accumulated iron oxide and are in the matrix; strongly effervescent; moderately alkaline; clear wavy boundary.
- 2Cg—48 to 80 inches; gray (2.5Y 5/1) sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the marly material (Lma horizon): 16 to 47 inches

Depth to sand: Typically 30 to 51 inches but can be as shallow as a depth of 24 inches

Oap horizon (where present):

Hue—10YR or N Value—2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)
Reaction—strongly acid to slightly alkaline

Oa horizon:

Hue—5YR to 10YR, or N Value—2, 2.5, or 3 Chroma—0 to 3 Texture—muck (sapric material)
Reaction—strongly acid to slightly alkaline

Lma horizon:

Hue-10YR to 5Y, or N

Value—4 to 8

Chroma—0 to 2

Texture—marly silt loam; coprogenous material less than 2 inches thick present above the marly silt loam in some pedons

Reaction—slightly alkaline or moderately alkaline

2Cg horizon:

Hue-10YR or 2.5Y

Value—5 to 7

Chroma—1 or 2

Texture—sand, coarse sand, fine sand, or loamy sand or the gravelly analogs of these textures Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 25 percent

Edwards Series

Taxonomic classification: Marly, euic, mesic Limnic Haplosaprists

Typical Pedon for the Series

Edwards muck (fig. 22), on a slope of less than 1 percent, in an idle area under vegetation of shrubs and trees at an elevation of 955 feet; Jackson County, Michigan; within the city limits of Jackson; 924 feet south and 1,320 feet east of northwest corner of sec. 36, T. 2 S., R. 1 W.; USGS Jackson North, Michigan, topographic quadrangle; lat. 42 degrees 15 minutes 45 seconds N. and long. 84 degrees 22 minutes 30 seconds W., NAD 27; UTM Zone 16, 716512 Easting and 4682261 Northing, NAD 83.

- Oa1—0 to 7 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; a trace of fiber unrubbed and rubbed; weak medium subangular blocky structure parting to moderate coarse granular; very friable; neutral; clear smooth boundary.
- Oa2—7 to 13 inches; muck (sapric material), dark reddish brown (5YR 3/2) broken face and black (5YR 2.5/1) rubbed; 8 percent fiber unrubbed, a trace of fiber rubbed; moderate medium subangular blocky structure; very friable; slightly alkaline; clear wavy boundary.
- Oa3—13 to 17 inches; muck (sapric material), dark reddish brown (5YR 3/2) broken face and black (5YR 2.5/1) rubbed; 35 percent fiber, 5 percent rubbed; weak thin platy structure; very friable; slightly alkaline; clear smooth boundary.

- Oa4—17 to 24 inches; muck (sapric material), 50 percent very dark gray (5YR 3/1) and 50 percent dark reddish brown (5YR 3/3) broken face, black (5YR 2.5/1) rubbed; 25 percent fiber, 2 percent rubbed; weak thin platy structure; friable; neutral; abrupt smooth boundary.
- Lma1—24 to 40 inches; 90 percent gray (10YR 5/1) and 10 percent gray (10YR 6/1) marly silty clay loam; massive; friable; 2-inch-thick strata of muck (sapric material) at 37 inches; prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron oxide and are around organic remnants; violently effervescent throughout; moderately alkaline; gradual smooth boundary.
- Lma2—40 to 85 inches; grayish brown (10YR 5/2) marly silt loam; massive; friable; black (N 2.5/0) organic spots; violently effervescent throughout; moderately alkaline.

Range in Characteristics

Depth to marly material (Lma horizon): 16 to 51 inches Organic fibers: Derived primarily from herbaceous plants but some layers contain as much as 20 percent woody material.

Carbonates: Present in the organic layer in some pedons.

Other features: Marly material has a layer of sandy or loamy material less than 12 inches thick within a depth of 51 inches in some pedons. Some pedons have thin strata less than 3 inches thick of muck (sapric material).

Surface tier of Oa1 or Oap horizon:

Hue-10YR or N

Value-2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)

Reaction—very strongly acid to slightly alkaline

Subsurface and bottom tiers of Oa horizon:

Hue-5YR to 10YR, or N

Value—2 to 4

Chroma-0 to 3

Texture—dominantly muck (sapric material); thin layers less than 10 inches thick of mucky peat (hemic material) are in some pedons

Reaction—very strongly acid to slightly alkaline

Lma horizon:

Hue—10YR to 5Y

Value—4 to 8

Chroma-1 or 2

Texture—marly silt loam or marly silty clay loam; coprogenous material present above the marly material in some pedons

Reaction—neutral to moderately alkaline

Elston Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Argiudolls

Typical Pedon for the Series

Elston sandy loam, on a convex slope of 1 percent, in a cultivated field at an elevation of about 530 feet; Vigo County, Indiana; about 3 miles west of Miltonville; 1,300 feet east and 500 feet north of the center of sec. 14, T. 13 N., R. 9 W.; USGS New Goshen, Indiana, topographic quadrangle; lat. 39 degrees 34 minutes 30 seconds N. and long. 87 degrees 22 minutes 40 seconds W., NAD 27; UTM Zone 16, 467551 Easting and 4380659 Northing, NAD 83.

- Ap—0 to 10 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; very friable; moderately acid; abrupt smooth boundary.
- A—10 to 20 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure; friable; moderately acid; gradual wavy boundary.
- Bt1—20 to 34 inches; dark brown (7.5YR 3/4) sandy loam, light brownish gray (10YR 6/2) dry; weak coarse subangular blocky structure; very friable; faint dark brown (7.5YR 3/2) clay films on some sand grains and bridges between sand grains; few gravel; moderately acid; gradual wavy boundary.
- Bt2—34 to 45 inches; brown (7.5YR 4/4) loamy sand; weak coarse subangular blocky structure; very friable; faint dark brown (7.5YR 3/2) clay films on sand grains and bridges between sand grains; few gravel; moderately acid; gradual wavy boundary.
- BC—45 to 72 inches; brown (7.5YR 4/4) loamy sand; single grain; loose; few gravel; moderately acid; clear wavy boundary.
- C—72 to 80 inches; pale brown (10YR 6/3) fine sand and sand; single grain; loose; few gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches Depth to the base of the argillic horizon: 40 to 60 inches

Thickness of the solum: 50 to 80 inches
Series control section: The sand fraction throughout
the solum is dominantly medium or coarser; the
content of rock fragments ranges from 0 to 14
percent throughout.

Depth to calcareous sand and gravelly sand: 5 to 8 feet

A or Ap horizon:

Hue—10YR

Value-2 or 3

Chroma—1 to 3

Texture—sandy loam

Reaction—strongly acid to neutral

Bt horizon:

Hue—5YR to 10YR; typically redder than 10YR

Value—3 to 5

Chroma—2 to 6

Texture—loam or sandy loam; subhorizons of sandy clay loam or loamy sand

Reaction—strongly acid to slightly acid

BC horizon:

Hue—5YR to 10YR; typically redder than 10YR

Value—3 to 5

Chroma-2 to 6

Texture—loamy sand or sand

Reaction—strongly acid to slightly acid

C horizon:

Hue—10YR

Value-5 or 6

Chroma-3 or 4

Texture—fine sand or sand; calcareous sand and gravelly sand at a depth of 5 to 8 feet

Reaction—moderately acid to moderately alkaline

Gilford Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for the Series

Gilford sandy loam (fig. 23), on a slope of less than 1 percent, in a cultivated field at an elevation of 766 feet; St. Joseph County, Indiana; about 6 miles east and 3 miles north of South Bend; 1,900 feet west and 50 feet north of the southeast corner of sec. 24, T. 38 N., R. 3 E.; USGS South Bend East, Indiana, topographic quadrangle; lat. 41 degrees 43 minutes 28.9 seconds N. and long. 86 degrees 07 minutes 36.0 seconds W., NAD 27; UTM Zone 16, 572638 Easting and 4619584 Northing, NAD 83.

- Ap—0 to 11 inches; black (10YR 2/1) sandy loam, dark gray (10YR 4/1) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.
- A—11 to 14 inches; very dark gray (10YR 3/1) sandy loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; friable; slightly acid; gradual wavy boundary.
- Bg1—14 to 20 inches; gray (10YR 5/1) sandy loam;

weak medium subangular blocky structure; friable; common fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; moderately acid; clear irregular boundary.

- Bg2—20 to 32 inches; gray (10YR 5/1) sandy loam; moderate medium subangular blocky structure; firm; common fine prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear wavy boundary.
- BCg—32 to 38 inches; gray (10YR 6/1) loamy sand; weak fine subangular blocky structure; very friable; common medium prominent strong brown (7.5YR 5/6) masses in which iron oxide has accumulated; neutral; clear wavy boundary.
- Cg1—38 to 48 inches; gray (10YR 6/1) sand; single grain; loose; neutral; clear wavy boundary.
- Cg2—48 to 80 inches; gray (10YR 6/1) coarse sand and sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: 24 to 50 inches

Depth to the BCg horizon: 30 to 40 inches

Depth to carbonates: Present in at least one horizon between a depth of 40 and 55 inches

Content of rock fragments: 0 to 3 percent fine gravel in the upper part of the series control section; 0 to 10 percent in the lower part

Ap or A horizon:

Hue—10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2

Texture—fine sandy loam or sandy loam

Reaction—moderately acid to neutral

Bg horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma—1 or 2

Texture—fine sandy loam or sandy loam

Reaction—moderately acid to neutral

BCg horizon:

Hue-7.5YR to 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—loamy sand, loamy fine sand, fine sand, or sand

Reaction—slightly acid or neutral

Cg or C horizon:

Hue—10YR or 2.5Y

Value—4 to 7

Chroma—1 to 3

Texture—loamy sand, sand, coarse sand, or fine sand

Reaction—slightly acid or neutral above a depth of 40 inches; neutral to moderately alkaline below a depth of 40 inches

Henrietta Series

Taxonomic classification: Coarse-loamy, mixed, superactive, nonacid, mesic Histic Humaquepts

Typical Pedon for the Series

Henrietta muck, in a nearly level area in a cultivated field at an elevation of 908 feet; Jackson County, Michigan; about 3.5 miles southwest of Munith; 1,800 feet south and 750 feet east of the northwest corner of sec. 26, T. 1 S., R. 1 E.; USGS Gilletts Lake, Michigan, topographic quadrangle; lat. 42 degrees 21 minutes 34.2 seconds N. and long. 84 degrees 17 minutes 17.3 seconds W., NAD 27; UTM Zone 16, 723332 Easting and 4693258 Northing, NAD 83.

Oap—0 to 12 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; 3 percent fiber; moderate fine subangular blocky structure; very friable; common fine roots; moderately acid; abrupt smooth boundary.

Bg1—12 to 18 inches; light brownish gray (10YR 6/2) loamy fine sand; weak fine subangular blocky structure; very friable; common fine roots; black (N 2.5/0) sapric material in root channels (¹/8- to ¹/4-inch diameter); common fine prominent yellowish brown (10YR 5/6) masses in which iron oxide has accumulated; 3 percent gravel; slightly acid; clear wavy boundary.

Bg2—18 to 33 inches; stratified gray (10YR 6/1) silt loam and fine sandy loam and light brownish gray (10YR 6/2) fine sand; moderate medium subangular blocky structure; friable (silt loam and fine sandy loam part); single grain; loose (fine sand part); few fine roots; black (N 2.5/0) sapric material in root channels (1/8- to 1/4-inch diameter); 3 percent gravel; neutral; gradual wavy boundary.

Bg3—33 to 43 inches; gray (10YR 6/1) stratified silt loam and fine sandy loam; moderate coarse subangular blocky structure; friable; black (N 2. 5/0) sapric material in root channels (1/8- to 1/4-inch diameter); many medium prominent light olive brown (2.5Y 5/4) masses in which iron oxide has accumulated; 3 percent gravel; slightly alkaline; gradual wavy boundary.

Cg—43 to 60 inches; light brownish gray (10YR 6/2)

loamy fine sand; massive; very friable; thin lenses of silt loam and fine sandy loam; slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 20 to 50 inches
Particle-size control section: 5 to 18 percent clay; 35 to
55 percent fine sand or coarser

Oap horizon:

Hue-5YR to 10YR, or N

Value—2, 2.5, or 3

Chroma-0 to 3

Texture—muck (sapric material)

Reaction—moderately acid to slightly alkaline

Bg horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma—1 or 2

Texture—silt loam, fine sandy loam, or sandy loam; strata of sandy clay loam, loam, loamy fine sand, loamy sand, fine sand, or sand Reaction—moderately acid to slightly alkaline Content of rock fragments—0 to 14 percent

Cg horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma—1 or 2

Texture—stratified silt loam, loam, sandy loam, fine sandy loam, loamy fine sand, loamy sand, or sand

Reaction—moderately alkaline

Content of rock fragments—0 to 14 percent

Hillsdale Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Hillsdale sandy loam (fig. 24), on a convex slope of 4 percent, in a cultivated field at an elevation of 873 feet; St. Joseph County, Michigan; about 2 miles south and 1.5 miles west of Mendon; 60 feet west and 130 feet north of the southeast corner of sec. 5, T. 6 S., R. 10 W.; USGS Nottawa, Michigan, topographic quadrangle; lat. 41 degrees 58 minutes 13.3 seconds N. and long. 85 degrees 29 minutes 18.89 seconds W., NAD 27; UTM Zone 16, 625232 Easting and 4647597 Northing, NAD 83.

Ap—0 to 8 inches; brown (10YR 4/3) sandy loam, pale brown (10YR 6/3) dry; weak fine granular

structure; friable; 5 percent gravel and 3 percent cobbles; neutral; abrupt smooth boundary.

- EB—8 to 14 inches; yellowish brown (10YR 5/6) sandy loam; moderate medium subangular blocky structure; friable; 5 percent gravel and 3 percent cobbles; slightly acid; clear wavy boundary.
- Bt1—14 to 31 inches; dark yellowish brown (10YR 4/6) sandy loam; moderate medium subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel and 3 percent cobbles; slightly acid; clear smooth boundary.
- Bt2—31 to 38 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; friable; common distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel and 3 percent cobbles; slightly acid; clear smooth boundary.
- Bt3—38 to 44 inches; yellowish brown (10YR 5/6) sandy loam; weak coarse subangular blocky structure; friable; few distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel and 3 percent cobbles; slightly acid; clear wavy boundary.
- BC—44 to 84 inches; yellowish brown (10YR 5/4) sandy loam; weak coarse subangular blocky structure; friable; 5 percent gravel and 3 percent cobbles; neutral.

Range in Characteristics

Thickness of the solum: 40 to more than 80 inches; normally corresponds to the depth to carbonates

Content of rock fragments: Few to 14 percent gravel throughout the series control section; some individual subhorizons have none

Particle-size control section: Less than 18 percent clay; less than 50 percent fine sand and very fine sand

Series control section: 50 to 85 percent sand

Ap horizon:

Hue—10YR

Value—3 or 4, 6 or more dry

Chroma—1 to 3

Texture—sandy loam

Reaction—very strongly acid to neutral

E horizon (where present):

Hue—10YR

Value-5 to 7

Chroma-2 to 4

Texture—sandy loam, fine sandy loam, loam, or loamy sand

EB horizon:

Hue—10YR

Value—4 to 7

Chroma-3 to 6

Texture—sandy loam, fine sandy loam, loam, or loamy sand

Bt horizon:

Hue-7.5YR or 10YR

Value—4 or 5

Chroma-3 to 6

Texture—sandy loam, sandy clay loam, or loam Reaction—very strongly acid to slightly acid

BC horizon:

Hue-7.5YR or 10YR

Value—4 or 5

Chroma—3 to 8

Texture—sandy loam or loamy sand; pockets of sand or loamy sand in some pedons
Reaction—strongly acid to neutral

C horizon:

Hue-7.5YR or 10YR

Value—5 or 6

Chroma—3 or 4

Texture—sandy loam or fine sandy loam; pockets of sand or loamy sand in some pedons
Reaction—slightly alkaline or moderately alkaline

Houghton Series

Taxonomic classification: Euic, mesic Typic Haplosaprists

Typical Pedon for the Series

Houghton muck, in a level area in a cultivated field at an elevation of 812 feet; Clinton County, Michigan; about 3 miles northeast of Bath; 200 feet north and 400 feet east of the southwest corner of sec. 12, T. 5 N., R. 1 W.; USGS Bath, Michigan, topographic quadrangle; lat. 42 degrees 49 minutes 42.69 seconds N. and long. 84 degrees 22 minutes 53.53 seconds W., NAD 27; UTM Zone 16, 714027 Easting and 4745102 Northing, NAD 83.

- Oa1—0 to 9 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; about 5 percent fiber, a trace rubbed; weak coarse subangular blocky structure; neutral (pH 7.0 in KCI); abrupt smooth boundary.
- Oa2—9 to 13 inches; muck (sapric material), black (N 2.5/0) broken face, very dark brown (7.5YR 2.5/2) rubbed; about 5 percent fiber, a trace rubbed; weak medium granular structure; neutral (pH 7.0 in KCI); abrupt smooth boundary.
- Oa3—13 to 24 inches; muck (sapric material), dark reddish brown (5YR 3/2) broken face, dark reddish

- brown (5YR 2.5/2) rubbed; about 15 percent fiber, less than 5 percent rubbed; massive, breaking to thick platy fragments; neutral (pH 7.0 KCI); abrupt smooth boundary.
- Oa4—24 to 32 inches; muck (sapric material), black (5YR 2.5/1) broken face and rubbed; about 10 percent fiber, a trace rubbed; massive; about 1 percent woody fragments; neutral (pH 7.0 in KCI); clear wavy boundary.
- Oa5—32 to 48 inches; muck (sapric material), dark reddish brown (5YR 2.5/2) broken face, black (5YR 2.5/1) rubbed; about 20 percent fiber, less than 10 percent rubbed; massive, breaking to thick platy fragments; neutral (pH 7.0 in KCI); abrupt smooth boundary.
- Oa6—48 to 80 inches; muck (sapric material), dark reddish brown (5YR 2.5/2) broken face and rubbed; about 10 percent fiber, less than 10 percent rubbed; massive; slightly sticky; about 15 percent mineral soil; neutral (pH 7.0 in KCl).

Range in Characteristics

Thickness of the organic layers: More than 51 inches Organic fibers: Derived primarily from herbaceous plants but some pedons contain individual layers which contain as much as 30 percent woody material; the woody fragment content averages less than 15 percent in the control section.

Oa horizon:

Hue—5YR to 10YR, or N Value—2, 2.5, or 3 Chroma—0 to 3 Texture—muck (sapric material) Reaction—very strongly acid to slightly alkaline

Jamestown Series

Taxonomic classification: Fine-loamy, mixed, superactive, nonacid, mesic Aeric Epiaguepts

Typical Pedon for the Series

Jamestown silt loam, occasionally flooded, in a nearly level area in a cultivated field at an elevation of 807 feet; Elkhart County, Indiana; about 1 mile northwest of Wakarusa; 860 feet east and 240 feet south of the northwest corner of sec. 26, T. 36 N., R. 4 E.; USGS Wakarusa, Indiana, topographic quadrangle; lat. 41 degrees 32 minutes 02 seconds N. and long. 86 degrees 02 minutes 10 seconds W., NAD 27; UTM Zone 16, 580407 Easting and 4598481 Northing, NAD 83.

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine

- roots throughout; neutral; abrupt smooth boundary.
- Ap2—5 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; friable; common very fine roots throughout; common very fine to medium interstitial and tubular pores with moderate continuity; neutral; abrupt smooth boundary.
- Bw—11 to 19 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; common very fine and fine tubular pores with moderate continuity; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium distinct dark brown (7.5YR 3/2) rounded masses in which iron and manganese oxide have accumulated throughout; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.
- Bg1—19 to 28 inches; grayish brown (10YR 5/2) loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; common very fine and fine tubular pores with moderate continuity; many medium distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; common medium distinct dark brown (7.5YR 3/2) rounded masses in which iron and manganese oxide have accumulated throughout; neutral; clear smooth boundary.
- Bg2—28 to 33 inches; grayish brown (10YR 5/2) loam; moderate medium subangular blocky structure; friable; common very fine and fine tubular pores with moderate continuity; many medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; common medium distinct dark brown (7.5YR 3/2) rounded masses in which iron and manganese oxide have accumulated throughout; neutral; clear wavy boundary.
- 2BC1—33 to 44 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; common very fine and fine tubular pores with moderate continuity; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium distinct dark brown (7.5YR 3/2) rounded masses in which iron and manganese oxide have accumulated throughout; common medium distinct grayish brown (10YR

- 5/2) and faint brown (10YR 5/3) iron depletions in the matrix; neutral; clear wavy boundary.
- 2BC2—44 to 52 inches; brown (10YR 5/3) loamy sand; weak coarse subangular blocky structure; very friable; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 6 percent gravel; neutral; clear wavy boundary.
- 3Cd1—52 to 68 inches; brown (10YR 5/3) loam; massive; very firm; many medium faint yellowish brown (10YR 5/4) masses of iron oxide accumulation in the matrix; 2 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- 3Cd2—68 to 80 inches; gray (N 5/0) loam; massive; very firm; common medium faint greenish gray (10Y 5/1) iron depletions in the matrix; 2 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches Depth to carbonates: 40 to 70 inches

Particle-size control section: 18 to 33 percent clay; 15 to 45 percent fine sand or coarser

Ap or A horizon:

Hue—10YR

Value—3 or 4, 6 or more dry

Chroma—2 or 3

Texture—silt loam

Reaction—slightly acid or neutral

Bw or Bg horizon:

Hue-10YR to 5Y

Value—4 to 6

Chroma—1 to 4

Texture—silt loam, loam, or silty clay loam

Reaction—slightly acid or neutral

2BC or 2BCg horizon:

Hue—10YR to 5Y

Value—4 to 6

Chroma-1 to 6

Texture—sandy loam in the upper part and loamy sand in the lower part; fine sandy loam, fine sand, or sand; texture becomes coarser with depth; subhorizons of loamy sand or coarser present in all pedons

Reaction—slightly acid to slightly alkaline Content of rock fragments—0 to 10 percent

3Cd horizon:

Hue-10YR to 5Y, or N

Value-5 or 6

Chroma-0 to 6

Texture—loam or fine sandy loam

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 10 percent

Madaus Series

Histic Humaquepts

Oap—0 to 9 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; moderate fine granular structure; very friable; common very fine and fine roots throughout; about 1 percent fiber, a trace rubbed; 1 percent shell fragments; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Taxonomic classification: Coarse-silty over sandy or

sandy-skeletal, carbonatic over mixed, mesic

Typical Pedon for the Series

percent, in a cultivated field at an elevation of 764 feet;

Elkhart County, Indiana; about 3 miles east of Elkhart;

Madaus muck (fig. 25), on a slope of less than 1

90 feet south and 600 feet west of the northeast

corner of sec. 7, T. 37 N., R. 6 E.; USGS Bristol,

minutes 53 seconds N. and long. 85 degrees 52

minutes 23 seconds W., NAD 27; UTM Zone 16,

593795 Easting and 4615021 Northing, NAD 83.

Indiana, topographic quadrangle; lat. 41 degrees 40

- C1—9 to 13 inches; gray (5Y 6/1) silt loam (marl); massive; friable; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with moderate continuity; common fine dark reddish brown (5YR 3/4) irregular masses that have accumulated iron oxide and are in root channels; about 1 percent fiber, a trace rubbed; 3 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.
- C2—13 to 31 inches; light yellowish brown (10YR 6/4) silt loam (marl); massive; friable; common very fine and fine roots throughout; common very fine and fine interstitial and tubular pores with moderate continuity; common medium distinct gray (10YR 6/1) cylindrical iron depletions in cracks; about 1 percent fiber, less than 1 percent rubbed; 3 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.
- C3—31 to 48 inches; gray (10YR 6/1) silt loam (marl); massive; friable; common very fine and fine interstitial and tubular pores with moderate continuity; about 1 percent fiber, less than 1 percent rubbed; 1 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.
- 2Cg-48 to 80 inches; dark gray (5Y 4/1) sand; single grain; loose; 5 percent gravel; strongly effervescent; moderately alkaline.



Figure 18.—Profile of Antung muck, drained, 0 to 1 percent slopes, showing a thin layer of muck (black layer) above sandy material (light colored material). The scale is in feet.



Figure 19.—Profile of Auten loam, 0 to 1 percent slopes. The scale is in inches.

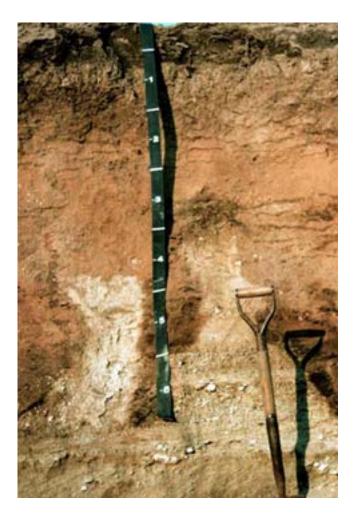


Figure 20.—Profile of Bainter sandy loam, 0 to 1 percent slopes. The scale is in feet.



Figure 21.—Profile of Crumstown fine sandy loam, 1 to 5 percent slopes. Notice the redoximorphic features start at a depth of 50 inches. The scale is in inches.



Figure 22.—Profile of Edwards muck, drained, 0 to 1 percent slopes. The scale is in feet.



Figure 23.—Profile of Gilford sandy loam, 0 to 1 percent slopes. The scale is in inches.



Figure 24.—Profile of Hillsdale sandy loam, 0 to 1 percent slopes. The pegs indicate the different horizons throughout the profile. The scale is in inches.



Figure 25.—Profile of Madaus muck, drained, 0 to 1 percent slopes, showing a thin layer of muck (black layer) above marl (light colored material). A substratum of sand is below 40 inches (not shown). The scale is in feet.



Figure 26.—Profile of Martisco muck, drained, 0 to 1 percent slopes. Note the dark organic material to a depth of 10 inches and the light colored marl below. The scale is in inches.



Figure 27.—Profile of Oshtemo component of Riddles-Oshtemo fine sandy loams, 0 to 1 percent slopes. The scale is in feet.



Figure 28.—Profile of Schoolcraft loam, 0 to 1 percent slopes. The scale is in inches.



Figure 29.—Profile of Tracy sandy loam, 1 to 5 percent slopes. The scale is in inches.

Range in Characteristics

Thickness of the organic surface layer: 7 to 16 inches Depth to sand: 17 to 56 inches

a or Oap horizon:

Hue-10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2

Reaction—slightly acid to moderately alkaline

Texture—muck (sapric material)

C horizon:

Hue-10YR to 5Y

Value—4 to 8

Chroma—1 to 4

Texture—silt loam (marl) or silty clay loam (marl) Reaction—slightly alkaline or moderately alkaline

2Cg or 2C horizon:

Hue—10YR to 5Y

Value—4 to 7

Chroma—1 to 4

Texture—loamy sand, fine sand, sand, or coarse sand or the gravelly analogs of these textures Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 25 percent

Martinsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Martinsville loam, on a slope of 1 percent, in a cultivated field at an elevation of about 890 feet; Hendricks County, Indiana; 1,050 feet north and 2,000 feet west of the southeast corner of sec. 22, T. 16 N., R. 2 E.; USGS Danville, Indiana, topographic quadrangle; lat. 39 degrees 48 minutes 26 seconds N. and long. 86 degrees 37 minutes 16 seconds W., NAD 27; UTM Zone 16, 532432 Easting and 4406435 Northing, NAD 83.

- Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few fine roots; neutral; abrupt smooth boundary.
- BE—8 to 13 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; few fine roots; neutral; clear wavy boundary.
- Bt1—13 to 17 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine subangular blocky structure; firm; few fine roots; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear wavy boundary.

- Bt2—17 to 35 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; strongly acid; gradual wavy boundary.
- Bt3—35 to 43 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate coarse subangular blocky structure; friable; common distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; moderately acid; clear wavy boundary.
- BC—43 to 53 inches; dark yellowish brown (10YR 3/4) sandy loam; weak coarse subangular blocky structure; very friable; slightly acid; clear wavy boundary.
- C—53 to 60 inches; brown (10YR 5/3), pale brown (10YR 6/3) and dark yellowish brown (10YR 3/4) stratified sandy loam, loam, and silt loam; massive; very friable; thin strata of sand; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 70 inches

Thickness of the solum: 40 to 80 inches

Particle-size control section: 22 to 33 percent clay; 20 to 50 percent sand

Content of rock fragments: 0 to 10 percent throughout the series control section; mainly fine gravel of crystalline, limestone, or igneous lithology

Other features: Some pedons have an E or EB horizon.

Ap or A horizon:

Hue—10YR

Value—4 or 5; 3 (thin A horizon)

Chroma—2 to 6

Texture—loam

Reaction—strongly acid to neutral

Bt or BC horizon:

Hue-7.5YR or 10YR

Value—3 to 6

Chroma—3 to 6

Texture—clay loam, sandy clay loam, silty clay loam, silt loam, or loam in the upper part; loam, sandy clay loam, silt loam, sandy loam, fine sandy loam, or very fine sandy loam or is stratified with these textures in the lower part

Reaction—strongly acid to neutral in the upper part; ranges to slightly alkaline in the lower part

C horizon:

Hue-10YR

Value—3 to 6

Chroma—3 to 6

Texture—stratified fine sandy loam, sandy loam,

loam, or silt loam; thin strata of silt, fine sand, loamy sand, loamy fine sand, very fine sandy loam, coarse sand, or sand

Reaction—slightly alkaline or moderately alkaline

Martisco Series

Taxonomic classification: Fine-silty, carbonatic, mesic Histic Humaquepts

Typical Pedon for MLRA 98

Martisco muck (fig. 26), on a slope of less than 1 percent, in a cultivated field at an elevation of 710 feet; St. Joseph County, Indiana; about 1 mile southwest of South Bend; 650 feet south and 975 feet west of the northeast corner of sec. 20, T. 37 N., R. 2 E.; USGS South Bend West, Indiana, topographic quadrangle; lat. 41 degrees 38 minutes 54 seconds N. and long. 86 degrees 18 minutes 56.9 seconds W., NAD 27; UTM Zone 16, 556974 Easting and 4610965 Northing, NAD 83.

- Oap—0 to 12 inches; muck (sapric material), 80 percent black (N 2.5/0) broken face and rubbed, 20 percent light gray (2.5Y 7/2) silt loam (marl); weak fine granular structure; very friable; strongly effervescent; slightly alkaline; abrupt smooth boundary.
- C1—12 to 26 inches; light gray (2.5Y 7/2) silt loam (marl); about 10 percent fiber, a trace rubbed; massive; friable; many fine prominent yellow (10YR 7/6) masses in which iron oxide has accumulated; 15 percent shell fragments; violently effervescent; moderately alkaline; clear wavy boundary.
- C2—26 to 38 inches; gray (2.5Y 6/1) silt loam (marl); massive; friable; common fine prominent yellow (10YR 7/6) masses in which iron oxide has accumulated; 15 percent shell fragments; violently effervescent; moderately alkaline; clear wavy boundary.
- C3—38 to 50 inches; grayish brown (2.5Y 5/2) silt loam (marl); massive; friable; common fine faint light olive brown (2.5Y 5/3) masses in which iron oxide has accumulated; 10 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.
- C4—50 to 60 inches; dark gray (N 4/0) silt loam (marl); massive; friable; common medium prominent light olive brown (2.5Y 5/4) masses in which iron oxide has accumulated; 10 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.
- C5—60 to 66 inches; gray (N 5/0) silt loam (marl); massive; friable; common medium prominent light

olive brown (2.5Y 5/3) and common medium prominent light yellowish brown (2.5Y 6/4) masses in which iron oxide has accumulated; common medium distinct light brownish gray (2.5Y 6/2) iron depletions; 10 percent shell fragments; violently effervescent; moderately alkaline; clear smooth boundary.

C6—66 to 80 inches; gray (5Y 5/1) silt loam (marl); massive; friable; many medium faint light brownish gray (2.5Y 6/2) iron depletions; 5 percent shell fragments; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the organic surface layer: 8 to 16 inches Depth to bedrock: More than 60 inches

Oap or Oa horizon:

Hue—5YR to 10YR, or N

Value—2, 2.5, or 3

Chroma—0 to 2

Reaction—slightly acid to moderately alkaline

Texture—muck (sapric material)

C horizon:

Hue—10YR to 5Y, or N

Value—4 to 8

Chroma—0 to 2

Texture—silt loam (marl)

Reaction—slightly alkaline or moderately alkaline

Maumee Series

Taxonomic classification: Sandy, mixed, mesic Typic Endoaquolls

Typical Pedon for the Series

Maumee loamy sand, on a slope of less than 1 percent, in a cultivated field at an elevation of 657 feet; Porter County, Indiana; about 3.5 miles south of Kouts; 700 feet north and 160 feet east of the southwest corner of sec. 32, T. 33 N., R. 5 W.; USGS Kouts, Indiana, topographic quadrangle; lat. 41 degrees 15 minutes 43.36 seconds N. and long. 87 degrees 1 minute 29.82 seconds W., NAD 27; UTM Zone 16, 497908 Easting and 4567851 Northing, NAD 83.

- Ap—0 to 10 inches; black (10YR 2/1) loamy sand, dark gray (10YR 4/1) dry; weak medium granular structure; very friable; few fine and medium roots; neutral; abrupt smooth boundary.
- A—10 to 23 inches; very dark gray (10YR 3/1) loamy sand, gray (10YR 5/1) dry; weak coarse subangular blocky structure; very friable; few fine roots; few fine prominent dark yellowish brown

- (10YR 3/6) masses that have accumulated iron oxide and are in the matrix; common coarse faint dark grayish brown (10YR 4/2) iron depletions in the matrix; neutral; clear wavy boundary.
- Bg1—23 to 32 inches; grayish brown (10YR 5/2) sand; single grain; loose; few fine roots; few fine very dark gray (10YR 3/1) organic matter accumulations in the matrix; few fine prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron oxide and are in the matrix; common coarse faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; clear wavy boundary.
- Bg2—32 to 38 inches; grayish brown (10YR 5/2) sand; single grain; loose; few fine roots; common medium distinct yellowish brown (10YR 5/4) and few medium prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron oxide and are in the matrix; neutral; abrupt wavy boundary.
- Cg1—38 to 61 inches; light brownish gray (10YR 6/2) fine sand; single grain; loose; common medium prominent brownish yellow (10YR 6/6) masses that have accumulated iron oxide and are in the matrix; neutral; abrupt wavy boundary.
- Cg2—61 to 80 inches; grayish brown (10YR 5/2) coarse sand and sand; single grain; loose; slightly alkaline.

Range in Characteristics

Thickness of the solum: 30 to 60 inches Thickness of the mollic epipedon: 15 to 24 inches Depth to carbonates: 40 or more inches

Ap or A horizon:

Hue-10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2

Texture—loamy fine sand or loamy sand Reaction—moderately acid to slightly alkaline Rock fragment content—0 to 5 percent gravel

Bg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2

Texture—sand, fine sand, loamy sand, or loamy fine sand; thin subhorizons of coarse sandy loam or sandy loam (non-pedogenic) in some pedons

Reaction—moderately acid to neutral Content of rock fragments—0 to 14 percent gravel

Cg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 or 2 above a depth of 40 inches; 1 to 3 below 40 inches

Texture—sand, coarse sand, fine sand, loamy sand, or loamy fine sand

Reaction—slightly acid to moderately alkaline Content of rock fragments—0 to 14 percent gravel

Metea Series

Taxonomic classification: Loamy, mixed, active, mesic Arenic Hapludalfs

Typical Pedon for the Series

Metea loamy fine sand, on a slope of 4 percent, in a cultivated field at an elevation of 800 feet; Marshall County, Indiana; about 4 miles south and 3 miles west of Plymouth; 700 feet south and 1,600 feet west of the center of sec. 25, T. 33 N., R. 1 E.; USGS Plymouth, Indiana, topographic quadrangle; lat. 41 degrees 16 minutes 45.4 seconds N. and long. 86 degrees 21 minutes 46.3 seconds W., NAD 27; UTM Zone 16, 553357 Easting and 4569962 Northing, NAD 83.

- Ap—0 to 9 inches; brown (10YR 4/3) loamy fine sand, light yellowish brown (10YR 6/4) dry; weak fine granular structure; very friable; moderately acid; abrupt smooth boundary.
- E—9 to 28 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; moderately acid; abrupt smooth boundary.
- Bt1—28 to 32 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; common brown (10YR 4/3) clay bridges between sand grains; 3 percent gravel; moderately acid; clear wavy boundary.
- 2Bt2—32 to 44 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; common distinct brown (10YR 4/3) clay films on faces of peds; 4 percent gravel; moderately acid; clear wavy boundary.
- 2C—44 to 80 inches; brown (10YR 5/3) loam; massive; friable; 4 percent gravel; slightly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 60 inches

Thickness of the sandy material: 20 to 40 inches

Ap or A horizon:

Hue—10YR

Value—3 to 5, more than 5.5 dry

Chroma-2 to 4

Texture—loamy sand

Reaction—moderately acid to neutral

E horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—loamy sand, loamy fine sand, sand, or fine sand

Reaction—strongly acid to slightly acid

Bt horizon:

Hue—10YR

Value—4 to 6

Chroma—4 to 6

Texture—sandy loam, fine sandy loam, or sandy clay loam

Reaction—moderately acid or slightly acid Content of rock fragments—0 to 5 percent gravel

2Bt horizon:

Hue-10YR

Value—4 or 5

Chroma-3 to 8

Texture—clay loam or loam

Reaction—moderately acid or slightly acid; ranges to neutral in the lower part when there is more than one subhorizon

Content of rock fragments—1 to 10 percent gravel

2C horizon:

Hue—10YR

Value—5 or 6

Chroma—3 to 8

Texture—loam or fine sandy loam

Reaction—slightly alkaline or moderately alkaline

Miami Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Miami silt loam, on a convex slope of 3 percent, in a cultivated field at an elevation of 880 feet; Hendricks County, Indiana; 3 miles east of Danville; 800 feet west and 300 feet south of the northeast corner of sec. 6, T. 15 N., R. 1 E.; USGS Brownsburg, Indiana, topographic quadrangle; lat. 39 degrees 46 minutes 31.5 seconds N. and long. 86 degrees 27 minutes 37.2 seconds W., NAD 27; UTM Zone 16, 546217 Easting and 4402976 Northing, NAD 83.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky

structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 1 percent rock fragments; moderately acid; abrupt wavy boundary.

2Bt2—13 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; strong coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; 2 percent rock fragments; strongly acid; clear wavy boundary.

2Bt3—23 to 31 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and as linings of some pores; common fine and medium distinct very dark gray (10YR 3/1) rounded masses that have accumulated iron and manganese and are in the matrix; 5 percent rock fragments; moderately acid; clear wavy boundary.

2BCt—31 to 36 inches; brown (10YR 4/3) loam; weak coarse prismatic structure; friable; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct very dark gray (10YR 3/1) irregularly shaped masses that have accumulated iron and manganese and are in the matrix; common medium faint light brownish gray (10YR 6/2) irregularly shaped iron depletions in the matrix; 5 percent rock fragments; slightly effervescent; slightly alkaline; clear irregular boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; few fine distinct very dark gray (10YR 3/1) irregularly shaped masses that have accumulated iron and manganese and are in the matrix; common medium faint grayish brown (10YR 5/2) irregularly shaped iron depletions in the matrix; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess or silty material: 0 to 18 inches Depth to the base of the argillic horizon: 24 to 40 inches

Depth to carbonates: 20 to 40 inches Depth to bedrock: More than 80 inches

Ap or A horizon:

Hue-10YR

Value—3 to 5, 6 dry

Chroma—1 to 4, 2 or 3 dry

Texture—loam or fine sandy loam; severely eroded pedons are clay loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 5 percent

E horizon (where present):

Hue—10YR

Value-5 or 6

Chroma—3 or 4

Texture—loam or silt loam; less commonly fine sandy loam or sandy loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 5 percent

Bt or 2Bt horizon:

Hue-7.5YR to 2.5Y

Value—4 to 6

Chroma—3 to 6

Texture—silt loam, silty clay loam, loam, or clay loam in the upper part; clay loam in the lower part

Reaction—strongly acid to slightly acid in the upper part; ranges to neutral in the lower part Content of rock fragments—1 to 10 percent

BCt, 2BCt, CB, or 2CB horizon:

Hue-7.5YR to 2.5Y

Value—4 to 6

Chroma—3 or 4

Texture—loam or less commonly fine sandy loam; clay loam in the upper part in some pedons
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 10 percent

Cd or 2Cd horizon:

Hue—10YR or 2.5Y, or less commonly 7.5YR

Value—5 or 6

Chroma—3 or 4

Texture—loam or less commonly fine sandy loam Reaction—slightly alkaline or moderately alkaline Content of rock fragments—1 to 10 percent

Milford Series

Taxonomic classification: Fine, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for the Series

Milford silty clay loam, on a southeast-facing slope of 1 percent, in a cultivated field at an elevation of 643 feet; Iroquois County, Illinois; about 2.5 miles southeast of Gilman; 1,450 feet north and 70 feet east of the southwest corner of sec. 4, T. 26 N., R. 14 W.; USGS Gilman, Illinois, topographic quadrangle; lat. 40 degrees 45 minutes 24 seconds N. and long. 87 degrees 57 minutes 29 seconds W., NAD 27; UTM Zone 16, 419127 Easting and 4512189 Northing, NAD 83.

Ap-0 to 9 inches; black (10YR 2/1) silty clay loam,

- dark gray (10YR 4/1) dry; moderate very fine and fine subangular and angular blocky structure; firm; many fine roots; slightly acid; abrupt smooth boundary.
- A—9 to 18 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate and strong very fine subangular blocky structure; firm; common fine roots; slightly acid; clear smooth boundary.
- BA—18 to 22 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; very firm; common fine roots; many distinct black (10YR 2/1) organic coatings on faces of peds; common medium prominent olive brown (2.5Y 4/4) masses that have accumulated iron oxide and are in the matrix; common medium faint dark grayish brown (2.5Y 4/2) iron depletions in the matrix; neutral; clear smooth boundary.
- Bg1—22 to 31 inches; gray (5Y 5/1) silty clay loam; moderate medium and coarse prismatic structure parting to moderate medium and coarse angular and subangular blocky; very firm; common fine roots; many faint dark gray (5Y 4/1) pressure faces on faces of peds; many medium prominent dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; few fine black (N 2.5/0) iron and manganese oxide concretions throughout; many medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; neutral; clear smooth boundary.
- Bg2—31 to 42 inches; gray (5Y 5/1) clay loam; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; very firm; few fine roots; common medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; neutral; clear smooth boundary.
- Bg3—42 to 50 inches; dark gray (5Y 4/1) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular and angular blocky; firm; few fine roots; stratified with thin bands of clay loam; many medium prominent dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.
- Cg—50 to 60 inches; gray (5Y 5/1) clay loam; massive; firm; few fine roots; stratified with bands of fine sandy loam, silty clay loam, and silty clay; many coarse prominent yellowish brown (10YR 5/4 and 5/8) masses that have accumulated iron oxide and are in the matrix; neutral.

Range in Characteristics

Depth to the base of the cambic horizon: 36 to 60 inches

Thickness of the mollic epipedon: 10 to 24 inches Particle-size control section: 35 to 42 percent clay Reaction: The series control section dominantly is slightly acid or neutral but ranges to moderately acid in the upper part and to moderately alkaline in the lower part.

Carbonates: In the lower one-quarter of the series control section in some pedons

Content of rock fragments: 0 to 5 percent throughout the series control section

A, Ap, or AB horizon:

Hue—10YR to 5Y, or N

Value—2, 2.5, or 3

Chroma—0 to 2

Texture—silty clay loam

Bg, Btg, or BCg horizon:

Hue—2.5Y or 5Y; less commonly 10YR or N

Value—4 to 6

Chroma-0 to 2

Texture—silty clay loam or silty clay in the upper part; stratified clay loam or silty clay loam in the lower part; thin strata that ranges from clay to fine sandy loam in some pedons

Cg horizon:

Hue—2.5Y or 5Y; less commonly 10YR or N

Value—4 to 6

Chroma—0 to 2

Texture—clay loam or silty clay loam; thin layers ranging from sandy loam to clay

Mishawaka Series

Taxonomic classification: Sandy, mixed, mesic Typic Hapludolls

Typical Pedon for the Series

Mishawaka sandy loam, on a slope of less than 1 percent, in a cultivated field at an elevation of 775 feet; Elkhart County, Indiana; about 0.5 mile southeast of Bristol; 1,590 feet east and 2,490 feet north of the southwest corner of sec. 26, T. 38 N., R. 6 E.; lat. 41 degrees 42 minutes 00 seconds N. and long. 85 degrees 48 minutes 15 seconds W., NAD 27; UTM Zone 16, 599500 Easting and 4617165 Northing, NAD 83.

Ap—0 to 12 inches; very dark brown (10YR 2/2) sandy loam, very dark grayish brown (10YR 3/2) dry; weak fine granular structure; very friable; common

fine and medium roots throughout; slightly acid; abrupt smooth boundary.

Bt1—12 to 18 inches; dark brown (7.5YR 3/3) sandy loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; very friable; many medium and coarse and common fine roots throughout; few faint very dark grayish brown (10YR 3/2) clay films on faces of peds and bridges between sand grains and gravel; 14 percent gravel; strongly acid; clear wavy boundary.

Bt2—18 to 25 inches; brown (7.5YR 4/3) gravelly loamy sand; weak fine subangular blocky structure; very friable; many medium and coarse and common fine roots throughout; few faint dark brown (10YR 3/3) clay films on faces of peds and bridges between sand grains and gravel; 31 percent gravel; strongly acid; clear wavy boundary.

BC—25 to 32 inches; dark yellowish brown (10YR 4/4) sand; weak fine subangular blocky structure; very friable; many coarse and common medium roots throughout; 1 percent gravel; strongly acid; gradual wavy boundary.

CB—32 to 58 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common coarse to fine roots throughout; strongly acid; gradual wavy boundary.

C1—58 to 70 inches; brown (10YR 5/3) sand; single grain; loose; common coarse to fine roots throughout; 3 percent gravel; strongly acid; gradual wavy boundary.

C2—70 to 80 inches; brown (10YR 5/3) coarse sand; single grain; loose; common coarse to fine roots throughout; 5 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches Thickness of the mollic epipedon: 10 to 20 inches

Ap horizon:

Hue-7.5YR or 10YR

Value—2, 2.5, or 3

Chroma—1 to 3

Texture—sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 14 percent gravel

Bt horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma—3 or 4

Texture—sandy loam or loamy sand or the gravelly analogs of these textures

Reaction—strongly acid or moderately acid

Content of rock fragments—0 to 34 percent gravel

BC or CB horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma—4 or 5

Texture— sand or fine sand

Reaction—strongly acid or moderately acid Content of rock fragments—0 to 14 percent gravel

C horizon:

Hue—10YR

Value—5

Chroma—3 or 4

Texture—sand or coarse sand

Reaction—strongly acid or moderately acid

Content of rock fragments—0 to 14 percent gravel

Moon Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Moon loamy sand, on a slope of 3 percent, in a cultivated field at an elevation of 731 feet; Pulaski County, Indiana; about 4.5 miles south of Monterey; 1,912 feet east and 1,595 feet south of the northwest corner of sec. 36, T. 31 N., R. 1 W.; USGS Kewanna, Indiana, topographic quadrangle; lat. 41 degrees 05 minutes 39.4 seconds N. and long. 86 degrees 28 minutes 41.3 seconds W., NAD 27; UTM Zone 16, 543826 Easting and 4549360 Northing, NAD 83.

- Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) loamy sand, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many medium and common fine and very fine roots throughout; 5 percent gravel; neutral; abrupt smooth boundary.
- E1—9 to 17 inches; dark yellowish brown (10YR 4/4) loamy sand; weak medium subangular blocky structure; friable; common medium roots throughout; 9 percent gravel; neutral; clear wavy boundary.
- E2—17 to 23 inches; yellowish brown (10YR 5/4) sand; weak medium subangular blocky structure; friable; common medium roots throughout; common medium faint dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; 12 percent gravel; neutral; clear wavy boundary.
- 2Bt1—23 to 31 inches; brown (10YR 4/3) sandy clay loam; moderate medium subangular blocky structure; firm; common medium roots between peds; common faint brown (10YR 4/3) clay films on faces of peds and in pores; common fine distinct yellowish brown (10YR 5/6) masses that

have accumulated iron oxide and are in the matrix; 14 percent gravel; neutral; clear wavy boundary.

- 2Bt2—31 to 35 inches; yellowish brown (10YR 5/4) sandy clay loam; moderate medium subangular blocky structure; firm; common medium roots between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and in pores; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; few prominent black (N 2.5/0) masses in which iron and manganese oxide have accumulated; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 6 percent gravel; neutral; clear wavy boundary.
- 2Bt3—35 to 45 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; firm; few medium roots between peds; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds and in pores; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 6 percent gravel; neutral; clear wavy boundary.
- 2BCtk—45 to 57 inches; brown (10YR 5/3) loam; weak coarse prismatic structure; firm; few medium roots between peds; common faint dark grayish brown (10YR 4/2) clay films on faces of peds and in pores; light gray (10YR 7/2) masses of carbonate on vertical faces of peds; many medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 7 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- 2C—57 to 80 inches; yellowish brown (10YR 5/4) loam; massive; firm; common fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 8 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 60 inches

Depth to carbonates: 40 to 60 inches

Depth to redoximorphic depletions with chroma of 2 or less: 30 to 40 inches

1688: 30 to 40 inches

Thickness of the sandy material: 20 to 40 inches

Ap or A horizon: Hue—10YR Value—3 to 5

Chroma-2 to 4

Texture—loamy sand

Reaction—moderately acid to neutral

Content of rock fragments—0 to 14 percent gravel

E horizon:

Hue-10YR

Value—4 or 5

Chroma—4 to 6

Texture—loamy sand, loamy fine sand, fine sand,

or sand

Reaction—very strongly acid to neutral

Content of rock fragments—0 to 14 percent gravel

2Bt horizon:

Hue—10YR

Value—4 or 5

Chroma-3 to 6

Texture—sandy loam, sandy clay loam, clay loam, or loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 14 percent gravel

2BCtk horizon:

Hue-10YR

Value-4 or 5

Chroma—3 to 6

Texture—fine sandy loam or loam

Reaction—slightly acid to slightly alkaline

Content of rock fragments—0 to 10 percent gravel

2C horizon:

Hue—10YR

Value—5 or 6

Chroma-3 to 8

Texture—fine sandy loam or loam

Reaction—slightly alkaline or moderately alkaline

Content of rock fragments—0 to 10 percent gravel

Morley Series

Taxonomic classification: Fine, illitic, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Morley silty clay loam, on a convex slope of 9 percent, in a cultivated field at an elevation of 850 feet; Adams County, Indiana; about 2.25 miles southeast of Berne; 1,580 feet west and 1,360 feet south of the northeast corner of sec. 15, T. 25 N., R. 14 E.; USGS Berne, Indiana, topographic quadrangle; lat. 40 degrees 37 minutes 16 seconds N. and long. 84 degrees 55 minutes 24 seconds W., NAD 27; UTM Zone 16, 675653 Easting and 4498771 Northing, NAD 83.

- Ap—0 to 9 inches; 80 percent dark grayish brown (10YR 4/2) and 20 percent dark yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; 1 percent gravel; moderately acid; abrupt smooth boundary.
- Bt1—9 to 17 inches; dark yellowish brown (10YR 4/4) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; few distinct grayish brown (10YR 5/2) silt coatings on faces of peds; 1 percent gravel; very strongly acid; clear smooth boundary.
- Bt2—17 to 20 inches; dark yellowish brown (10YR 4/4) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; 2 percent gravel; neutral; clear wavy boundary.
- Bt3—20 to 29 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; strongly effervescent; slightly alkaline; clear wavy boundary.
- Cd1—29 to 36 inches; yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure parting to weak very thick platy; very firm; very few distinct dark grayish brown (10YR 4/2) clay films and common distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.
- Cd2—36 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak very coarse prismatic structure; very firm; few distinct light gray (10YR 7/2) carbonate coatings on vertical faces of cracks; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 40 inches

Depth to carbonates: 20 to 40 inches Thickness of the loess: 0 to 18 inches

Particle-size control section: 35 to 50 percent clay, 15 to 25 percent sand, and 1 to 5 percent rock fragments

Ap horizon:

Hue—10YR

Value—4

Chroma—2 or 3

Texture—silt loam or silty clay loam

Reaction—strongly acid to neutral

A horizon (where present):

Hue—10YR

Value—2 or 3

Chroma—1 or 2

Texture—silt loam or silty clay loam

Reaction—strongly acid to neutral

Thickness of the horizon—less than 6 inches

Bt horizon:

Hue—10YR

Value—4 or 5

Chroma—3 to 6

Texture—clay loam or clay; less commonly silty clay loam or silty clay

Reaction—very strongly acid to slightly alkaline Content of rock fragments—1 to 10 percent

Cd horizon:

Hue—10YR

Value—5

Chroma—3 or 4

Texture—clay loam; less commonly silty clay loam Reaction—slightly acid to moderately alkaline Content of rock fragments—1 to 10 percent

Morocco Series

Taxonomic classification: Mixed, mesic Aquic Udipsamments

Typical Pedon for the Series

Morocco loamy fine sand, on a slope of 0.5 percent, in a cultivated field at an elevation of 687 feet; Jasper County, Indiana; 4 miles southwest of Demotte; 270 feet north and 950 feet west of the southeast corner of sec. 7, T. 31 N., R. 7 W.; USGS Shelby, Indiana, topographic quadrangle; lat. 41 degrees 08 minutes 43.6 seconds N. and long. 87 degrees 15 minutes 35.9 seconds W., NAD 27; UTM Zone 16, 478181 Easting and 4554938 Northing, NAD 83.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loamy fine sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common fine and very fine roots; very strongly acid; abrupt smooth boundary.

Bw1—9 to 14 inches; light yellowish brown (10YR 6/4) loamy fine sand; single grain; loose; few very fine

roots; few fine prominent strong brown (7.5YR 5/8) masses that have accumulated iron oxide and are in the matrix; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; very strongly acid; clear wavy boundary.

Bw2—14 to 22 inches; very pale brown (10YR 7/3) loamy fine sand; single grain; loose; few very fine roots; common medium prominent brownish yellow (10YR 6/8) masses that have accumulated iron oxide and are in the matrix; very strongly acid; clear wavy boundary.

Bg—22 to 35 inches; light gray (10YR 7/2) fine sand; single grain; loose; many coarse prominent yellowish red (5YR 5/8) masses that have accumulated iron oxide and are in the matrix; very strongly acid; clear wavy boundary.

B'w1—35 to 50 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; common medium prominent brownish yellow (10YR 6/8) masses that have accumulated iron oxide and are in the matrix; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; very strongly acid; gradual wavy boundary

B'w2—50 to 60 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; common medium prominent brownish yellow (10YR 6/8) masses that have accumulated iron and are in the matrix; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

C—60 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; common medium distinct brownish yellow (10YR 6/6) masses that have accumulated iron oxide and are in the matrix; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid.

Range in Characteristics

Thickness of the solum: 24 to 80 inches Depth to iron depletions: Within a depth of 24 inches

Ap or A horizon:

Hue—10YR

Value—2 to 6, 6 or more dry where the Ap or A horizon is 6 inches or more thick

Chroma—1 to 4

Texture—loamy fine sand or loamy sand

Reaction—very strongly acid to neutral depending on liming history

Content of rock fragments—0 to 1 percent gravel

E horizon (where present):

Hue—10YR

Value—4 to 6

Chroma—3 or 4

Texture—loamy fine sand, fine sand, loamy sand, or sand

Reaction—very strongly acid to neutral depending on liming history

Content of rock fragments—0 to 1 percent gravel

Bw or Bg horizon:

Hue—5YR to 2.5Y

Value—4 to 7

Chroma-1 to 8

Texture—fine sand, sand, loamy fine sand, or loamy sand

Reaction—very strongly acid to moderately acid Content of rock fragments—0 to 5 percent gravel

C horizon:

Hue—2.5YR to 10YR

Value—5 to 8

Chroma—1 to 4

Texture—fine sand or sand

Reaction—very strongly acid to moderately acid Content of rock fragments—0 to 7 percent gravel

Moston Series

Taxonomic classification: Coprogenous, euic, mesic Limnic Haplosaprists

Typical Pedon for the Series

Moston muck, on a slope of less than 1 percent, in a cultivated field at an elevation of 714 feet; Pulaski County, Indiana; about 2 miles west of Monterey; 1,590 feet east and 1,750 feet south of the northwest corner of sec. 9, T. 31 N., R. 1 W.; USGS Bass Lake, Indiana, topographic quadrangle; lat. 41 degrees 09 minutes 07.9 seconds N. and long. 86 degrees 32 minutes 18.9 seconds W., NAD 27; UTM Zone 16, 538716 Easting and 4555757 Northing, NAD 83.

- Oap—0 to 8 inches; muck (sapric material), black (N 2.5/0) broken faced and rubbed; a trace of fiber unrubbed and rubbed; moderate medium granular structure; friable; common very fine and fine roots; moderately acid; abrupt smooth boundary.
- Oa1—8 to 15 inches; muck (sapric material), black (N 2.5/0) broken faced and rubbed; a trace of fiber unrubbed and rubbed; weak medium subangular blocky structure; friable; common very fine and fine roots; strongly acid; clear wavy boundary.
- Oa2—15 to 24 inches; muck (sapric material), dark brown (10YR 3/3) broken faced and rubbed; about 50 percent fiber, about 5 percent rubbed; moderate thick platy structure; friable; common

- very fine and fine roots; neutral; clear wavy boundary.
- Lco1—24 to 30 inches; very dark gray (10YR 3/1) coprogenous silt loam; about 5 percent fiber, a trace rubbed; massive; friable; neutral; clear wavy boundary.
- Lco2—30 to 48 inches; very dark grayish brown (2.5Y 3/2) coprogenous silt loam; about 15 percent fiber, a trace rubbed; massive; friable; neutral; clear wavy boundary.
- Cg—48 to 80 inches; gray (2.5Y 5/1) sand; single grain; loose; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the herbaceous organic layers: 16 to 45 inches

Depth to coprogenous material (sedimentary peat): 16 to 45 inches

Organic fibers: Derived primarily from herbaceous plants, although some pedons contain less than 15 percent, by volume, twigs and small wood fragments.

Depth to the underlying sand: 21 to 51 inches

Oap horizon:

Hue-10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)

Reaction—very strongly acid to neutral

Oa horizon:

Hue—7.5YR or 10YR, or N

Value—2, 2.5, or 3

Chroma—0 to 3

Texture—muck (sapric material)

Reaction—very strongly acid to neutral

Lco horizon:

Hue-10YR to 5Y

Value—2 to 5

Chroma—1 to 3

Texture—coprogenous silt loam or coprogenous silty clay loam

Reaction—moderately acid to slightly alkaline

Cg horizon:

Hue-10YR or 2.5Y

Value—3 to 6

Chroma—1 or 2

Texture—loamy sand, fine sand, sand, or coarse sand or the gravelly analogs of these textures Reaction—neutral to moderately alkaline Content of rock fragments—0 to 25 percent

Muskego Series

Taxonomic classification: Coprogenous, euic, mesic Limnic Haplosaprists

Typical Pedon for MLRA 111

Muskego muck, 0 to 1 percent slopes, drained, in a cultivated field at an elevation of 791 feet; Elkhart County, Indiana; about 2.5 miles south and 2 miles east of Jamestown, Indiana; 2,507 feet south and 275 feet west of the northeast corner of sec. 6, T. 36 N., R. 5 E., USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 36 minutes 07 seconds N. and long. 85 degrees 59 minutes 05 seconds W., NAD 27; UTM Zone 16, 584605 Easting and 4606086 Northing, NAD 83.

- Oap—0 to 9 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; about 5 percent fiber, less than 1 percent rubbed; moderate fine granular structure; very friable; many very fine and fine roots throughout; slightly acid; abrupt smooth boundary.
- Oa1—9 to 21 inches; muck (sapric material), brown (7.5YR 4/4) broken face, black (N 2.5/0) after exposure to air; about 5 percent fiber, less than 1 percent rubbed; moderate thin platy structure; very firm; common very fine and fine roots between peds; slightly acid; clear smooth boundary.
- Oa2—21 to 27 inches; muck (sapric material), dark gray (10YR 4/1) broken face, black (N 2.5/0) after exposure to air; about 15 percent fiber, 2 percent rubbed; weak thin platy structure; friable; common very fine and fine roots between peds; slightly acid; clear smooth boundary.
- Lco1—27 to 35 inches; dark grayish brown (2.5Y 4/2) coprogenous material; about 5 percent fiber, 5 percent rubbed; massive; very friable; neutral; clear smooth boundary.
- Lco2—35 to 54 inches; dark grayish brown (2.5Y 4/2) coprogenous material; massive; very friable; neutral; clear smooth boundary.
- Lco3—54 to 70 inches; coprogenous material, olive gray (5Y 4/2), dark gray (5Y 4/1) after exposure to air; massive; very friable; neutral; clear smooth boundary.
- Lco4—70 to 80 inches; dark gray (5Y 4/1) coprogenous material; massive; very friable; neutral.

Range in Characteristics

Thickness of the herbaceous organic layers: 16 to 51 inches

Depth to coprogenous material (sedimentary peat): 16 to 51 inches

Organic fibers: Derived primarily from herbaceous plants; some pedons contain fragments of twigs, branches, or logs that range from ¹/₈ inch to 5 inches in diameter and amount to less than 15 percent of the volume.

Surface tier of the Oap or Oa horizon:

Hue—7.5YR or 10YR, or N

Value-2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)

Reaction—moderately acid to neutral (water, 1:1)

Herbaceous organic subsurface and bottom tiers of the Oa horizon:

Hue-7.5YR or 10YR, or N

Value—2, 2.5, or 3

Chroma-0 to 3

Texture—muck (sapric material); some pedons have layers of mucky peat (hemic material) up to 10 inches thick

Reaction—moderately acid to slightly alkaline (water, 1:1)

Lco horizon:

Hue—10YR to 5Y

Value—2 to 5

Chroma—1 to 3

Texture—coprogenous material

Reaction—neutral to moderately alkaline

Oshtemo Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Oshtemo sandy loam (fig. 27), on a slope of 1 percent, in a cultivated field at an elevation of 837 feet; St. Joseph County, Michigan; about 1 mile north of Centreville; 800 feet north and 880 feet east of the southwest corner of sec. 18, T. 6 S., R. 10 W.; USGS Nottawa, Michigan, topographic quadrangle; lat. 41 degrees 56 minutes 34.2 seconds N. and long. 85 degrees 31 minutes 28.3 seconds W., NAD 27; UTM Zone 16, 622305 Easting and 4644488 Northing, NAD 83.

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) sandy loam, light brownish gray (10YR 6/2) dry; weak coarse granular structure; very friable; slightly acid; abrupt smooth boundary.
- E—9 to 14 inches; brown (10YR 5/3) sandy loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; very friable; many worm and root channels filled with Ap material;

- about 3 percent fine gravel; moderately acid; clear wavy boundary.
- Bt1—14 to 26 inches; dark reddish brown (5YR 3/4) sandy loam, brown (7.5YR 4/4) dry; weak coarse subangular blocky structure; friable; common faint clay films on faces of peds; about 8 percent gravel; strongly acid; clear wavy boundary.
- Bt2—26 to 35 inches; brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; common faint clay films on faces of peds; some clay bridges between sand grains and gravel; few dark brown (7.5YR 3/2) masses 1 to 3 inches in diameter; about 5 percent gravel; strongly acid; gradual wavy boundary.
- BC1—35 to 46 inches; brown (7.5YR 4/4) loamy sand; single grain; loose; many dark brown (7.5YR 3/2) spots and masses up to 2 inches in diameter; about 5 percent gravel; moderately acid; diffuse irregular boundary.
- BC2—46 to 60 inches; brown (7.5YR 4/4) loamy sand; single grain; loose; dark brown (7.5YR 3/2) bands ¹/₈ inch thick; most sand grains have dark brown (7.5YR 3/2) coatings; moderately acid; abrupt irregular boundary.
- C—60 to 80 inches; grayish brown (10YR 5/2) stratified sand and gravelly sand; single grain; loose; about 20 percent gravel; few faint carbonate coatings on lower side of gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 45 inches

Thickness of the solum: 40 to 75 inches Depth to carbonates: 40 to 70 inches

Ap horizon:

Hue—7.5YR or 10YR Value—3 to 5, 6 or more dry

Chroma-2 or 3

Texture—sandy loam or fine sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—1 to 14 percent

E horizon:

Hue—10YR

Value-5 or 6

Chroma—3 to 6, moist or dry

Texture—loam, sandy loam, fine sandy loam,

loamy sand, or loamy fine sand

Reaction—strongly acid to neutral

Content of rock fragments—1 to 14 percent

Bt horizon:

Hue—5YR to 10YR Value—3 to 5 Chroma-3 to 6

Texture—sandy loam, gravelly sandy loam, sandy clay loam, gravelly coarse sandy loam, gravelly sandy clay loam, or fine sandy loam; the lower part is in bands 1/8 inch to 4 inches thick separated by sand or loamy sand in some pedons; the lower part is coarse sandy loam or gravelly coarse sandy loam in some pedons

Reaction—strongly acid to slightly acid in the upper part; strongly acid to neutral in the lower part

Content of rock fragments—1 to 30 percent

BC horizon:

Hue-5YR to 10YR

Value—3 to 5

Chroma-2 to 6

Texture—loamy sand, sandy loam, gravelly loamy sand, or gravelly sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—1 to 30 percent

C horizon:

Hue—10YR

Value—4 to 6

Chroma-2 to 6

Texture—stratified sand, coarse sand, loamy sand, or loamy coarse sand or the gravelly or very gravelly analogs of these textures
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—10 to 50 percent

Osolo Series

Taxonomic classification: Mixed, mesic Typic Udipsamments

Typical Pedon for the Series

Osolo loamy sand, on a slope of 0.5 percent, in a cultivated field at an elevation of 776 feet; Elkhart County, Indiana; 0.25 mile east of Heaton Lake; 2,583 feet west and 1,666 feet south of the northeast corner of sec. 24, T. 38 N., R. 5 E.; USGS Elkhart, Indiana, topographic quadrangle; lat. 41 degrees 44 minutes 04 seconds N. and long. 85 degrees 53 minutes 23 seconds W., NAD 27; UTM Zone 16, 592332 Easting and 4620894 Northing, NAD 83.

Ap—0 to 9 inches; dark brown (10YR 3/3) loamy sand, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; common very fine and fine roots; slightly acid; 1 percent gravel; abrupt smooth boundary.

Bw1—9 to 15 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; very friable;

few very fine and fine roots; slightly acid; 1 percent gravel; clear wavy boundary.

- Bw2—15 to 20 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; very friable; few very fine and fine roots; neutral; 1 percent gravel; clear wavy boundary.
- Bw3—20 to 25 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; very friable; few very fine and fine roots; slightly acid; 2 percent gravel; clear wavy boundary.
- Bw4—25 to 29 inches; brown (7.5YR 4/4) sand; single grain; loose; slightly acid; clear wavy boundary.
- Bw5—29 to 40 inches; dark yellowish brown (10YR 4/6) sand; single grain; loose; slightly acid; clear wavy boundary.
- BC1—40 to 48 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few medium faint pale brown (10YR 6/3) iron depletions in the matrix; slightly acid; clear wavy boundary.
- BC2—48 to 66 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; many medium distinct strong brown (7.5YR 4/6) masses that have accumulated iron oxide and are in the matrix; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear wavy boundary.
- CB—66 to 80 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid.

Range in Characteristics

Thickness of the solum: 60 to more than 80 inches

Depth to sand or fine sand: 20 to 50 inches Depth to redoximorphic features: 40 to 72 inches Reaction: Strongly acid to neutral throughout the series control section

Rock fragment content: 0 to 10 percent gravel throughout the series control section

Particle-size control section: silt content plus clay content averages more than 10 percent; fine sand content averages less than 50 percent.

Ap horizon:

Hue—10YR Value—3 or 4 Chroma—2 to 4 Texture—loamy sand

A horizon (where present):

Hue—10YR
Value—3
Chroma—1 to 3
Texture—loamy sand

Bw horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—4 to 6

Texture—loamy sand in the upper part; sand or fine sand in the lower part

BC, CB, or C horizon:

Hue-10YR

Value—4 to 6

Chroma-3 to 6

Texture—sand or fine sand

Palms Series

Taxonomic classification: Loamy, mixed, euic, mesic Terric Haplosaprists

Typical Pedon for the Series

Palms muck, on a slope of 1 percent, under marsh vegetation at an elevation of 648 feet; Gratiot County, Michigan; north of the flood plain of the Maple River and about 200 feet south of the upland; 1,420 feet south and 820 feet west of northeast corner of sec. 27, T. 9 N., R. 2 W.; USGS Pompeli, Michigan, topographic quadrangle; lat. 43 degrees 08 minutes 31.3 seconds N. and long. 84 degrees 31 minutes 34.7 seconds W., NAD 27; UTM Zone 16, 701165 Easting and 4779557 Northing, NAD 83.

- Oa1—0 to 14 inches; muck (sapric material), black (10YR 2/1) broken face and rubbed; about 5 percent fiber, less than 5 percent rubbed; moderate medium granular structure; slightly sticky; about 20 to 25 percent mineral material; slightly acid (pH 6.5 in water); abrupt smooth boundary.
- Oa2—14 to 28 inches; muck (sapric material), black (10YR 2/1) broken face and rubbed; about 5 percent fiber, less than 5 percent rubbed; massive parting to weak coarse subangular blocky structure; slightly sticky; 10 to 20 percent mineral material; strongly acid (pH 5.5 in water); clear smooth boundary.
- Oa3—28 to 35 inches; muck (sapric material), black (N 2.5/0) rubbed; about 5 percent fiber, less than 5 percent rubbed; massive; slightly sticky; 10 to 20 percent mineral material; moderately acid (pH 6.0 in water); abrupt smooth boundary.
- Cg—35 to 80 inches; gray (10YR 5/1) clay loam; massive; friable; common medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; neutral (pH 6.8 in water) in upper part; slightly

effervescent; moderately alkaline in lower part of the horizon.

Range in Characteristics

Depth to the loamy C horizon: 16 to 51 inches Organic fibers: Derived primarily from herbaceous plants but some layers contain as much as 15 percent woody material.

Reaction of the organic material: Strongly acid to slightly alkaline

Carbonates: Present in some organic layers

Other features: Some pedons have a thin layer of
sedimentary peat above the C horizon; some
pedons have a thin A horizon above the C horizon.

Surface tier of the Oa1 horizon:

Hue—5YR to 10YR, or N

Value-2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)

Subsurface and bottom tiers of the Oa horizon:

Hue-5YR to 10YR, or N

Value-2 to 4

Chroma-0 to 3

Texture—muck (sapric material); thin layers of hemic material less than 10 inches thick in some pedons; thin layers of fibric material less than 5 inches thick in some pedons

C or Cg horizon:

Hue-10YR to 5Y, 5GY, or N

Value—3 to 7

Chroma—0 to 4

Texture—loamy very fine sand, sandy loam, fine sandy loam, loam, silt loam, silty clay loam, clay loam, or sandy clay loam or the gravelly analogs of these textures; thin strata of fine sand, loamy sand, or silt in some pedons Reaction—moderately acid to moderately alkaline Content of rock fragments—0 to 25 percent gravel to stones

Quinn Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Endoaqualfs

Typical Pedon for the Series

Quinn loam, on a slope of less than 1 percent, in a forested area at an elevation of 728 feet; St. Joseph County, Indiana; about 3.5 miles southeast of New Carlisle along Edison Road; 380 feet west and 240 feet south of northeast corner of sec. 5, T. 37 N., R. 1 E.; USGS Lydick, Indiana, topographic quadrangle; lat. 41 degrees 41 minutes 35.3 seconds N. and long. 86 degrees 25 minutes

46.56 seconds W., NAD 27; UTM Zone 16, 547464 Easting and 4615870 Northing, NAD 83.

- A—0 to 4 inches; very dark gray (10YR 3/1) loam, gray (10YR 5/1) dry; weak fine granular structure; friable; very strongly acid; abrupt smooth boundary.
- E—4 to 7 inches; gray (10YR 6/1) loam; weak thick platy structure; friable; very dark gray (10YR 3/1) wormcasts and fills in old root channels; common iron and manganese oxide concretions; very strongly acid; abrupt smooth boundary.
- Btg1—7 to 12 inches; gray (10YR 5/1) loam; weak medium subangular blocky structure; friable; common faint dark gray (10YR 4/1) clay films on faces of peds and as linings in pores; many medium prominent brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; common iron and manganese oxide concretions; very strongly acid; clear wavy boundary.
- Btg2—12 to 19 inches; gray (10YR 6/1) sandy loam; weak medium subangular blocky structure; friable; common distinct grayish brown (10YR 5/2) clay films in old root channels, as linings in pores, and on faces of peds; common medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; many medium iron and manganese oxide concretions; very strongly acid; clear wavy boundary.
- Btg3—19 to 27 inches; gray (10YR 5/1) sandy loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; common distinct silt coatings on faces of peds and as linings in pores; many medium prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; many medium iron and manganese oxide concretions; few gravel and shale fragments (5 to 10 percent); very strongly acid; clear irregular boundary.
- Btg4—27 to 42 inches; gray (10YR 5/1) sandy loam; weak coarse prismatic structure; friable; pockets of loamy sand; common faint gray (10YR 5/1) clay films as linings in pores; many medium distinct yellowish brown (10YR 5/4) and prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; many medium iron and manganese oxide concretions; few gravel and fine shale fragments; very strongly acid; clear wavy boundary.
- Btg5—42 to 47 inches; gray (10YR 5/1) loam; weak coarse subangular blocky structure; friable; common faint gray (10YR 5/1) clay films as linings in pores and on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses

that have accumulated iron oxide and are in the matrix; common iron and manganese oxide concretions; few gravel and fine shale fragments (5 to 10 percent); strongly acid; clear broken boundary.

- Cg—47 to 72 inches; grayish brown (10YR 5/2) loamy sand and sand; single grain; loose; many medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron oxide and are in the matrix; 5 to 20 percent gravel and shale fragments; slightly acid; clear wavy boundary.
- C—72 to 80 inches; yellowish brown (10YR 5/4) sand and gravelly sand; single grain; loose; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 5 to 20 percent gravel and shale fragments; slightly acid.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 60 inches

Reaction: Typically very strongly or strongly acid in the solum but individual horizons in some pedons are moderately acid

A horizon:

Hue—10YR

Value—3 or 4

Chroma—1

Texture—loam or sandy loam

Ap horizon (where present):

Hue—10YR

Value—4 or 5

Chroma—1 or 2

Texture—loam or sandy loam

Thickness of the horizon—6 to 10 inches

E horizon:

Hue-10YR or 2.5Y

Value-5 or 6

Chroma—1 or 2

Texture—loam, sandy loam, or silt loam

Upper part of the Btg horizon:

Hue-10YR or 2.5Y

Value—5 or 6

Chroma—1 or 2

Texture—loam or sandy loam; clay loam or sandy clay loam in some pedons

Content of rock fragments—0 to 14 percent

Lower part of the Btg horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 or 2

Texture—stratified sandy loam, loam, sandy clay

loam, or loamy sand or the gravelly analogs of these textures

Content of rock fragments—5 to 20 percent

Cg or C horizon:

Hue—10YR or 2.5Y

Value—5 or 6

Chroma—1 to 4

Texture—loamy sand or sand or the gravelly or very gravelly analogs of these textures
Content of rock fragments—5 to 30 percent; ranges to more than 40 percent in some

pedons; dominantly shale

Rensselaer Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Rensselaer loam, on a concave slope of less than 1 percent, in a cultivated field at an elevation of 817 feet; Marshall County, Indiana; 3 miles east and 1.5 miles north of Bourbon; 1,150 feet east and 380 feet north of the southwest corner of sec. 9, T. 33 N., R. 4 E.; USGS Bourbon, Indiana, topographic quadrangle; lat. 41 degrees 19 minutes 07.5 seconds N. and long. 86 degrees 04 minutes 23.2 seconds W., NAD 27; UTM Zone 16, 577576 Easting and 4574562 Northing, NAD 83.

- Ap—0 to 11 inches; very dark gray (10YR 3/1) loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; common fine roots throughout; neutral; clear smooth boundary.
- A—11 to 15 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; friable; common fine roots throughout; common fine faint brown (10YR 4/3) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.
- Btg1—15 to 26 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; few fine roots between peds; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish red (5YR 5/8) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear wavy boundary.
- Btg2—26 to 38 inches; gray (10YR 6/1) clay loam; moderate medium subangular blocky structure; firm; few fine roots between peds; many distinct dark gray (10YR 4/1) clay films on faces of peds;

common medium prominent yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.

Btg3—38 to 42 inches; gray (10YR 5/1) loam; moderate medium subangular blocky structure; friable; few fine and very fine roots between peds; common distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cg1—42 to 60 inches; gray (10YR 6/1) silt loam; massive; friable; thin strata of fine sand; few medium prominent brownish yellow (10YR 6/8) masses that have accumulated iron oxide and are in the matrix; 10 percent fine gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

2Cg2—60 to 76 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; thin strata of loamy sand and sandy loam; massive; friable; common medium distinct yellowish brown (10YR 5/4) masses that have accumulated iron oxide and are in the matrix; 5 percent fine gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

3Cg3—76 to 80 inches; gray (10YR 5/1) loam; massive; friable; 5 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 60 inches

Particle-size control section: 20 to 35 percent clay; 25 to 35 percent fine sand or coarser

Ap or A horizon:

Hue-10YR or N

Value-2, 2.5, or 3

Chroma—0 to 2

Texture—loam or mucky loam

Reaction—slightly acid or neutral

Content of rock fragments—0 to 5 percent

Btg horizon:

Hue-10YR to 5Y, or N

Value—4 to 6

Chroma—0 to 2; some subhorizons have chroma of 3 or 4 in the lower part

Texture—clay loam, loam, or silty clay loam in the upper part; loam, sandy clay loam, clay loam, silt loam, sandy loam, or fine sandy loam in the lower part

Reaction—slightly acid or neutral in the upper part;d neutral or slightly alkaline in the lower part

Content of rock fragments—0 to 5 percent

2Cg horizon:

Hue-10YR or 2.5Y, or N

Value—4 to 6

Chroma—0 to 2; some pedons have a 2C horizon with chroma of 3 in thin strata of sand

Texture—stratified fine sand, very fine sand, loamy sand, loamy fine sand, sandy loam, loam, or silt loam; strata of fine sand in all pedons and strata of coarse sand or sand 3 to 6 inches in thickness in some pedons

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 10 percent; dominantly fine and medium gravel

3Cg horizon (where present):

Hue-2.5YR, 10YR, or N

Value—4 to 6

Chroma-0 to 2

Texture—loam or fine sandy loam

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—1 to 10 percent

Riddles Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Riddles fine sandy loam, on a convex slope of 4 percent, in a cultivated field at an elevation of 902 feet; Elkhart County, Indiana; about 1 mile northeast of the community of Southwest, on the south side of Indiana Highway 119; 2,250 feet south and 500 feet east of the northwest corner of sec. 26, T. 36 N., R. 5 E.; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 32 minutes 39 seconds N. and long. 85 degrees 55 minutes 23 seconds W., NAD 27; UTM Zone 16, 589824 Easting and 4599733 Northing, NAD 83.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and medium roots throughout; many very fine to medium interstitial and tubular pores; 7 percent gravel; slightly acid; abrupt wavy boundary.

Bt1—8 to 13 inches; brown (7.5YR 4/3) sandy clay loam; moderate fine and medium subangular blocky structure; firm; few fine and medium roots throughout; many fine interstitial and tubular pores; many faint brown (10YR 4/3) clay films on faces of

- peds; common distinct brown (10YR 5/3) silt coatings on faces of peds; 8 percent gravel; neutral; clear wavy boundary.
- Bt2—13 to 20 inches; brown (10YR 4/3) clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine and medium roots throughout; many fine interstitial and tubular pores; many faint dark grayish brown (10YR 4/2) clay films on faces of peds; common faint brown (10YR 5/3) silt coatings on faces of peds; 3 percent gravel; slightly acid; clear wavy boundary.
- Bt3—20 to 33 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots throughout; many fine interstitial and tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; many faint brown (10YR 5/3) silt coatings on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; 7 percent gravel; moderately acid; gradual wavy boundary.
- Bt4—33 to 46 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate coarse subangular blocky structure; firm; few fine roots throughout; many fine interstitial and tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; few fine faint brown (10YR 5/3) iron depletions in the matrix; 7 percent gravel; neutral; gradual wavy boundary.
- Bt5—46 to 55 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse subangular blocky structure; firm; few very fine roots throughout; many fine interstitial and tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; few fine faint brown (10YR 5/3) iron depletions in the matrix; 7 percent gravel; 1 percent cobbles; moderately acid; gradual wavy boundary.
- Bt6—55 to 63 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; firm; few very fine roots throughout; many fine interstitial and tubular pores; many faint brown (10YR 4/3) clay films on faces of peds; 5 percent gravel; moderately acid; clear wavy boundary.
- 2Bt and E—63 to 70 inches; brown (10YR 4/3) sandy loam (Bt) as lamellae 1 inch to 1.25 inches thick with a combined thickness of 4 inches; weak thick platy structure; very friable; few very fine roots

- throughout; few very fine interstitial and tubular pores; common distinct brown (10YR 4/3) clay bridges between sand grains; 5 percent gravel; moderately acid; yellowish brown (10YR 5/4) sand (E); weak medium subangular blocky structure; very friable; few very fine roots throughout; few very fine interstitial and tubular pores; 5 percent gravel; moderately acid; gradual wavy boundary.
- 2E and Bt—70 to 78 inches; yellowish brown (10YR 5/4) loamy sand (E); weak medium subangular blocky structure; very friable; few very fine roots throughout; few very fine interstitial and tubular pores; 5 percent gravel; slightly acid; brown (10YR 4/3) loamy sand (Bt) as lamellae 1 inch to 1.5 inches thick with a combined thickness of 2 inches; weak thick platy structure; very friable; few very fine roots throughout; few very fine interstitial and tubular pores; common distinct brown (10YR 4/3) clay bridges between sand grains; 5 percent gravel; slightly acid; clear wavy boundary.
- 2B and BC—78 to 90 inches; 85 percent dark yellowish brown (10YR 4/4) loamy sand (B); weak thin platy structure; very friable; few very fine interstitial and tubular pores; 3 percent gravel; slightly acid; 15 percent light yellowish brown (10YR 6/4) sand (BC); single grain; loose; few very fine interstitial and tubular pores; 3 percent gravel; slightly acid; clear wavy boundary.
- 3C—90 to 100 inches; yellowish brown (10YR 5/4) fine sandy loam; weak thin platy structure; firm; pockets of sand; 5 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to more than 80 inches

Depth to carbonates: 40 to more than 80 inches Particle-size control section: 20 to 30 percent clay; more than 40 percent sand

Ap or A horizon:

Hue—10YR

Value—3 to 5, 6 or more dry

Chroma—1 to 4

Texture—fine sandy loam

Reaction— moderately acid to neutral Content of rock fragments—1 to 14 percent

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E or EB horizon (where present):

Hue-10YR

Value—5 or 6

Chroma—2 to 4

Texture—loam, silt loam, sandy loam, or fine sandy loam

Bt or BE horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma—3 to 6

Texture—sandy clay loam, clay loam, or loam; fine sandy loam or sandy loam in the lower part of the Bt horizon in some pedons

Reaction—strongly acid to neutral

Content of rock fragments—1 to 14 percent

BC horizon (where present):

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-3 to 6

Texture—loam, sandy clay loam, clay loam, or sandy loam

Reaction—neutral or slightly alkaline

C horizon (where present):

Hue—10YR

Value—4 to 6

Chroma—3 or 4

Texture—loam or sandy loam

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—7 to 14 percent

2Bt, 2Bt and E, 2E and Bt, or 2B and BC horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-3 to 6

Texture—fine sandy loam, sandy loam, loamy sand, or sand or the gravelly analogs of these textures

Reaction—strongly acid to neutral

Content of rock fragments—less than 15 percent; individual horizons can range up to 30 percent.

2C horizon (where present):

Hue—10YR

Value-5 or 6

Chroma—3 or 4

Texture—sandy loam, loamy sand, or sand or the gravelly analogs of these textures

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—less than 15 percent; individual horizons can range up to 34 percent.

3C horizon:

Hue-10YR

Value-4 to 6

Chroma—3 or 4

Texture—loam, sandy loam, or fine sandy loam; pockets of sand in some pedons

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—1 to 10 percent gravel

Schoolcraft Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiudolls

Typical Pedon for the Series

Schoolcraft loam (fig. 28), on a southwest-facing slope of 1 percent, in a cultivated field at an elevation of 896 feet; Kalamazoo County, Michigan; about 1.5 miles north and 1.5 miles west of Schoolcraft; 1,200 feet east and 50 feet north of the southwest corner of sec. 11, T. 4 S., R. 12 W.; USGS Schoolcraft, Michigan, Northwest topographic quadrangle; lat. 42 degrees 07 minutes 41.2 seconds N. and long. 85 degrees 40 minutes 54.3 seconds W., NAD 27; UTM Zone 16, 608956 Easting and 4664846 Northing, NAD 83.

- Ap—0 to 10 inches; black (10YR 2/1) loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; few fine roots; 5 percent gravel; neutral; abrupt smooth boundary.
- BE—10 to 14 inches; brown (7.5YR 4/3) loam; 10 percent black (10YR 2/1) loam A material filling root channels; moderate medium subangular blocky structure; friable; few fine roots; 5 percent gravel; slightly acid; clear smooth boundary.
- Bt1—14 to 19 inches; brown (7.5YR 4/3) clay loam; moderate medium subangular blocky structure; firm; many distinct dark yellowish brown (10YR 3/4) clay films in pores and on faces of peds; 5 percent gravel; very strongly acid; clear wavy boundary.
- Bt2—19 to 29 inches; dark brown (7.5YR 3/4) sandy clay loam; moderate medium subangular blocky structure; firm; many distinct dark yellowish brown (10YR 3/4) clay films in pores and on faces of peds; 14 percent gravel; very strongly acid; clear wavy boundary.
- Bt3—29 to 39 inches; dark brown (7.5YR 3/3) gravelly sandy loam; moderate medium subangular blocky structure; friable; common distinct dark brown (10YR 3/3) clay films on rock fragments; 20 percent gravel; very strongly acid; clear wavy boundary.
- 2Bt4—39 to 42 inches; strong brown (7.5YR 4/6) loamy sand; weak coarse subangular blocky structure; very friable; few faint clay bridges between sand grains; 5 percent gravel; strongly acid; clear wavy boundary.
- 2BC1—42 to 59 inches; yellowish brown (10YR 5/6) sand; weak coarse subangular blocky structure; very friable; 5 percent gravel; moderately acid; gradual wavy boundary.

2BC2—59 to 77 inches; light yellowish brown (10YR 6/4) sand; weak coarse subangular blocky structure; very friable; neutral; gradual wavy boundary.

2C1—77 to 83 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; 14 percent gravel; slightly effervescent; slightly alkaline; gradual wavy boundary.

2C2—83 to 95 inches; light yellowish brown (10YR 6/4) gravelly coarse sand; single grain; loose; 25 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 25 to 50 inches

Depth to the sandy outwash: 25 to 40 inches Kind of rock fragments: Dominantly gravel

Ap or A horizon:

Hue-7.5YR or 10YR

Value—2, 2.5, or 3

Chroma—1 to 3

Texture—loam

Reaction—moderately acid to neutral

Content of rock fragments—0 to 10 percent

BE horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma—3 or 4

Texture—loam, silt loam, or sandy loam

Reaction—very strongly acid to neutral

Content of rock fragments—0 to 10 percent

Bt horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma-3 to 6

Texture—loam, clay loam, or sandy clay loam in the upper part; sandy loam or gravelly sandy loam in the lower part

Reaction—very strongly acid to neutral Content of rock fragments—0 to 25 percent

BC horizon (where present):

Hue-7.5YR or 10YR

Value—3 to 5

Chroma-3 to 6

Texture—sandy loam or gravelly sandy loam

2Bt horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma-3 to 6

Texture—sand or loamy sand or the gravelly analogs of these textures

Reaction—very strongly acid to neutral Content of rock fragments—0 to 25 percent

2BC horizon:

Hue—7.5YR or 10YR

Value—3 to 6

Chroma-3 to 6

Texture—sand or loamy sand or the gravelly analogs of these textures

Reaction—very strongly acid to neutral Content of rock fragments—0 to 25 percent

2C horizon:

Hue-7.5YR or 10YR

Value-4 to 6

Chroma—3 to 6

Texture—sand, gravelly sand, or gravelly coarse sand; bands of loamy sand in some pedons Reaction—neutral to moderately alkaline Content of rock fragments—0 to 34 percent

Selfridge Series

Taxonomic classification: Loamy, mixed, active, mesic Aquic Arenic Hapludalfs

Typical Pedon for the Series

Selfridge sand, on a convex slope of 1 percent, in a residential area at an elevation of 612 feet; Monroe County, Michigan; about 5.5 miles southeast of Scofield; 1,970 feet west and 1,280 feet south of the northeast corner of sec. 18, T. 6 S., R. 9 E.; USGS Monroe, Michigan, topographic quadrangle; lat. 41 degrees 58 minutes 28.07 seconds N. and long. 83 degrees 24 minutes 17.43 seconds W., NAD 27; UTM Zone 17, 300756 Easting and 4649742 Northing, NAD 83.

- Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; few roots; slightly acid; abrupt smooth boundary.
- E—8 to 15 inches; brown (10YR 5/3) sand; single grain; loose; few roots; discontinuous streaks of strong brown (7.5YR 5/8) sand; common fine distinct yellowish brown (10YR 5/6) masses in which iron oxide has accumulated; common fine faint grayish brown (10YR 5/2) iron depletions; moderately acid; clear wavy boundary.
- Bw—15 to 25 inches; yellowish brown (10YR 5/6) sand; single grain; loose; common fine distinct yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; neutral; abrupt wavy boundary.

2Bt1—25 to 29 inches; brown (10YR 4/3) sandy loam; weak coarse subangular blocky structure; friable; clay bridges between sand grains; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent fine gravel; neutral; clear wavy boundary.

2Bt2—29 to 32 inches; reddish brown (5YR 5/3) clay loam; weak fine angular blocky structure; firm; common faint clay films on faces of peds; many fine prominent strong brown (7.5YR 5/6) masses that have accumulated iron oxide and are in the matrix; many fine prominent greenish gray (5GY 6/1) iron depletions; 1 percent fine gravel; moderately alkaline; clear wavy boundary.

2Cg1—32 to 60 inches; reddish gray (5YR 5/2) clay loam; massive; firm; many gray (10YR 6/1) carbonate nodules; common fine prominent yellowish brown (10YR 5/6) masses in which iron oxide has accumulated; common fine prominent greenish gray (5GY 6/1) iron depletions throughout; 1 percent fine gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

2Cg2—60 to 80 inches; reddish gray (5YR 5/2) clay loam; massive; firm; common fine prominent yellowish brown (10YR 5/6) masses in which iron oxide has accumulated; common fine prominent greenish gray (5GY 6/1) iron depletions; 1 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to base of the argillic horizon: 24 to 50 inches Thickness of the sandy material: 20 to 40 inches

Ap or A horizon:

Hue-10YR

Value—2 to 4

Chroma—1 to 3

Texture—loamy sand or loamy fine sand

Reaction—strongly acid to neutral

Content of rock fragments—0 to 5 percent

E horizon:

Hue-7.5YR or 10YR

Value-5 or 6

Chroma-2 to 4

Texture—sand, fine sand, loamy sand, or loamy fine sand

Reaction—strongly acid to neutral

Content of rock fragments—0 to 5 percent

Bw horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma-3 to 8

Texture—sand, fine sand, loamy sand, or loamy fine sand

Reaction—strongly acid to neutral

Content of rock fragments—0 to 5 percent

2Bt1 horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma—1 to 6

Texture—sandy loam, sandy clay loam, loam, or silt loam

Reaction—strongly acid to slightly alkaline Content of rock fragments—0 to 10 percent

2Bt2 horizon:

Hue—5YR to 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—clay loam, silty clay loam, or loam Reaction—strongly acid to slightly alkaline Content of rock fragments—0 to 10 percent

2Cg or 2C horizon:

Hue-5YR to 10YR

Value-5 or 6

Chroma—1 to 6

Texture—clay loam, loam, silt loam, or silty clay loam

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—0 to 10 percent

Southwest Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon for the Series

Southwest silt loam, on a concave slope of 1 percent, in a cultivated field at an elevation of 820 feet; Elkhart County, Indiana; about 3 miles north and 2 miles east of Wakarusa; 129 feet west and 1,167 feet south of the northeast corner of sec. 8, T. 36 N., R. 5 E.; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 35 minutes 28 seconds N. and long. 85 degrees 57 minutes 53 seconds W., NAD 27; UTM Zone 16, 586286 Easting and 4604903 Northing, NAD 83.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots throughout; slightly acid; clear wavy boundary.

Bg1—10 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky

structure; friable; common very fine and fine roots throughout; many fine and medium interstitial and tubular pores with moderate continuity; common medium faint brown (10YR 4/3) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear wavy boundary.

- Bg2—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium interstitial and tubular pores with moderate continuity; common medium faint brown (10YR 4/3) masses that have accumulated iron oxide and are in the matrix; slightly acid; clear wavy boundary.
- 2Ab—23 to 34 inches; black (10YR 2/1) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; neutral; clear wavy boundary.
- 2Bgb—34 to 45 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; many medium distinct brown (10YR 5/3) and common fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; neutral; clear wavy boundary.
- 3Ab1—45 to 55 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron oxide and are in the matrix; neutral; gradual wavy boundary.
- 3Ab2—55 to 75 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak thick platy structure; friable; common medium prominent dark yellowish brown (10YR 4/6) masses that have accumulated iron oxide and are in the matrix; neutral; gradual wavy boundary.
- 3Cg—75 to 80 inches; dark gray (5Y 4/1) silt loam; massive; friable; slightly effervescent; slightly alkaline.

Range in Characteristics

Depth to carbonates: 40 to more than 80 inches
Thickness of the overwash and depth to a buried soil:
20 to 40 inches

Content of rock fragments: 0 to 5 percent gravel below the overwash

Ap horizon:

Hue—10YR

Value—4

Chroma—2 or 3

Texture—silt loam

Reaction—slightly acid or neutral

A horizon (where present):

Hue—10YR

Value-3

Chroma—2 or 3

Texture—silt loam

Reaction—slightly acid or neutral

Thickness of the horizon—less than 7 inches

Bg horizon:

Hue—10YR

Value—4 or 5

Chroma—1 or 2

Texture—silt loam or silty clay loam

Reaction—slightly acid or neutral

2Ab, 2Bgb, or 3Ab horizon:

Hue-10YR or 2.5Y

Value—2 to 6

Chroma—1 or 2

Texture—silty clay loam, silt loam, clay loam, or loam

Reaction—slightly acid to slightly alkaline

3Cg or 3C horizon (where present):

Hue—10YR to 5Y

Value—4 or 5

Chroma—1 to 4

Texture—loam, silt loam, or clay loam

Reaction—slightly alkaline or moderately alkaline

Tracy Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for the Series

Tracy sandy loam (fig. 29), in a convex, nearly level area under mixed hardwoods at an elevation of 708 feet; Porter County, Indiana; about 0.5 mile southwest of Malden; 2,360 feet west and 1,932 feet north of the center of sec. 30, T. 34 N., R. 5 W.; USGS Kouts, Indiana, topographic quadrangle; lat. 41 degrees 22 minutes 02.7 seconds N. and long. 87 degrees 02 minutes 08.19 seconds W., NAD 27; UTM Zone 16, 497019 Easting and 4579549 Northing, NAD 83.

- A—0 to 5 inches; very dark brown (10YR 2/2) sandy loam, very dark grayish brown (10YR 3/2) crushed, grayish brown (10YR 5/2) dry; moderate medium and coarse granular structure; friable; 1 percent fine gravel, dominantly shale; strongly acid; abrupt smooth boundary.
- E—5 to 9 inches; brown (7.5YR 5/3) loam; weak medium platy structure; friable; common fine vesicular voids; faint very dark gray (10YR 3/1)

dry; sand coatings on faces of peds; color disappears when moistened; few very dark grayish brown (10YR 3/2) wormcasts; 3 percent fine gravel, dominantly shale; very strongly acid; clear wavy boundary.

Bt1—9 to 13 inches; brown (7.5YR 4/4) sandy loam; weak medium and fine subangular blocky structure; friable; common faint brown (7.5YR 4/4) clay films on faces of peds and as linings in voids; faint gray (10YR 5/1) very fine sand coatings on faces of peds; few very dark grayish brown (10YR 3/2) wormcasts; 5 percent fine gravel, dominantly shale; very strongly acid; clear wavy boundary.

Bt2—13 to 24 inches; brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few fine voids; many faint brown (7.5YR 4/4) clay films on faces of peds and as linings in voids; common distinct dark brown (7.5YR 3/3) organic coatings on faces of peds; 13 percent fine gravel, dominantly shale; very strongly acid; clear wavy boundary.

Bt3—24 to 33 inches; brown (7.5YR 4/4) sandy loam; moderate medium and coarse subangular blocky structure; friable; many faint brown (7.5YR 4/4) clay films on faces of peds and as linings in voids; common distinct dark brown (7.5YR 3/3) organic coatings on faces of peds; 13 percent fine and medium gravel, dominantly shale; very strongly acid; clear wavy boundary.

Bt4—33 to 47 inches; brown (7.5YR 5/4) sandy loam; weak medium and coarse subangular blocky structure; friable; horizon has a 1-inch thick layer of brown (10YR 5/3) gravelly sandy loam; common distinct brown (7.5YR 4/4) clay films on faces of peds and as linings in voids; 14 percent fine gravel, dominantly shale; very strongly acid; clear wavy boundary.

Bt5—47 to 60 inches; stratified brown (7.5YR 5/4) gravelly sandy clay loam and brown (10YR 5/3) gravelly loamy sand; weak coarse subangular blocky structure; firm and loose; common distinct dark brown (7.5YR 3/3) clay films on faces of peds; common prominent dark brown (7.5YR 3/3) clay films on surfaces of shale fragments and on cleavage planes; the gravelly loamy sand strata are 1 inch to 1½ inches thick and there are 3 strata in horizon; few shale channers, ½ inch to 2 inches in length and ¼-inch thick; 23 percent gravel, dominantly shale; very strongly acid; clear wavy boundary.

2C—60 to 80 inches; brown (10YR 5/3) stratified loamy sand, sand, and gravelly sand; single grain; loose; moderately acid.

Range in Characteristics

Depth to the base of the argillic horizon: 40 to 70 inches

Depth to carbonates: 6 feet or more
Particle-size control section: 14 to 18 percent clay
Series control section: 0 to 20 percent fine gravel in
the upper part; 0 to 30 percent fine gravel in the

lower part

A horizon:

Hue—10YR

Value—2 or 3; more than 5 when the uppermost 6 inches are mixed

Chroma—2

Texture—sandy loam

Ap horizon (where present):

Hue-7.5YR or 10YR

Value—3 or 4, more than 5 dry

Chroma—3 or 4

Texture—sandy loam

Thickness of the horizon—6 to 10 inches

E horizon:

Hue-7.5YR or 10YR

Value—4 to 6

Chroma—3 or 4

Texture—loam or sandy loam

Bt horizon:

Hue-7.5YR or 10YR

Value-4 to 6

Chroma-3 to 6

Texture—loam or sandy loam; sandy clay, sandy clay loam, or clay loam or the gravelly analogs of these textures

Reaction—very strongly acid or strongly acid

2C horizon:

Hue—10YR

Value—5 or 6

Chroma—3 to 6

Texture—stratified sand, gravelly sand, sandy

loam, or loamy sand
Reaction—moderately acid to neutral

Troxel Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Pachic Argiudolls

Typical Pedon for the Series

Troxel silt loam, in a cultivated field at an elevation of about 855 feet; McHenry County, Illinois; about 2 miles

southwest of Woodstock; 165 feet south and 2,100 feet west of the northeast corner of sec. 14, T. 44 N., R. 6 E.; USGS Woodstock, Illinois, topographic quadrangle; lat. 42 degrees 17 minutes 53 seconds N. and long. 88 degrees 29 minutes 59 seconds W., NAD 27; UTM Zone 16, 376369 Easting and 4683962 Northing, NAD 83.

- Ap—0 to 8 inches; black (10YR 2/1) silt loam, dark grayish brown (10YR 4/2) dry; weak very fine granular structure; friable; many very fine roots; slightly acid; abrupt smooth boundary.
- A1—8 to 14 inches; black (10YR 2/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine roots; slightly acid; abrupt smooth boundary.
- A2—14 to 27 inches; black (N 2.5/0) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common very fine roots; moderately acid; clear smooth boundary.
- A3—27 to 33 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine granular structure; friable; common very fine roots; moderately acid; clear smooth boundary.
- BA—33 to 39 inches; brown (10YR 4/3) silt loam; moderate very fine subangular blocky structure; friable; common very fine roots; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; moderately acid; clear smooth boundary.
- Bt1—39 to 55 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; common sand grains; moderately acid; clear smooth boundary.
- 2Bt2—55 to 60 inches; 60 percent brown (10YR 4/3) and 40 percent dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; 5 percent gravel; moderately acid; clear smooth boundary.
- 2Bt3—60 to 67 inches; brown (10YR 4/3) gravelly sandy loam; weak medium subangular blocky structure; friable; common distinct dark brown (10YR 3/3) clay films on faces of peds; 17 percent gravel; slightly acid; clear smooth boundary.
- 2Bt4—67 to 75 inches; dark yellowish brown (10YR 4/4) stratified loamy sand and sandy loam; weak coarse subangular blocky structure; very friable; few distinct brown (10YR 4/3) clay films on faces of peds and in pores; 8 percent gravel; slightly acid; abrupt smooth boundary.

2Bt5—75 to 79 inches; 55 percent dark yellowish brown (10YR 4/4) and 45 percent brown (10YR 4/3) clay loam; weak medium angular blocky structure; firm; few distinct dark brown (10YR 3/3) clay films on faces of peds and in pores; 10 percent gravel; slightly acid; abrupt smooth boundary.

2BC—79 to 102 inches; 55 percent dark brown (7.5YR 3/2) and 45 percent brown (7.5YR 4/2) gravelly sandy clay loam; weak coarse angular blocky structure; friable; 18 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the solum: 5 feet to over 10 feet
Thickness of the mollic epipedon: 20 to 45 inches
Reaction: Moderately acid to neutral in most parts of
the series control section; some pedons range to
slightly alkaline in the lower part

Other features: Some pedons have an AB horizon rather than a BA horizon.

Ap, A, or AB horizon:

Hue-10YR or 2.5Y, or N

Value—2, 2.5, or 3

Chroma—0 to 3

Texture—silt loam

Bt or BA horizon:

Hue—10YR

Value—3 to 5

Chroma—3 to 6

Texture—silt loam or silty clay loam

2Bt or 2BC horizon:

Hue-7.5YR or 10YR

Value—3 to 5

Chroma-2 to 6

Texture—clay loam, loam, or sandy clay loam or the gravelly analogs of these textures; strata of coarser textures in some pedons; darker colored, clay enriched subhorizon is common in some pedons

Content of rock fragments—0 to 20 percent

Tyner Series

Taxonomic classification: Mixed, mesic Typic Udipsamments

Typical Pedon for the Series

Tyner loamy sand, on a slope of 1 percent, in a cultivated field at an elevation of 784 feet; Elkhart County, Indiana; about 3 miles northeast of Bristol; 400 feet east and 453 feet south of the northwest corner of

sec. 20, T. 38 N., R. 7 E.; USGS Bristol, Indiana, topographic quadrangle; lat. 41 degrees 44 minutes 18 seconds N. and long. 85 degrees 45 minutes 20 seconds W., NAD 27; UTM Zone 16, 603483 Easting and 4621478 Northing, NAD 83.

Ap—0 to 12 inches; dark brown (7.5YR 3/3) loamy sand, light brown (7.5YR 6/3) dry; weak fine granular structure; very friable; many fine and few medium roots throughout; 2 percent gravel; very strongly acid; abrupt smooth boundary.

Bw1—12 to 20 inches; strong brown (7.5YR 5/6) loamy sand; weak medium subangular blocky structure; very friable; few medium roots throughout; 4 percent gravel; moderately acid; clear wavy boundary.

Bw2—20 to 27 inches; yellowish brown (10YR 5/6) fine sand; weak medium and coarse subangular blocky structure; very friable; few medium roots throughout; 2 percent gravel; moderately acid; clear wavy boundary.

Bw3—27 to 34 inches; yellowish brown (10YR 5/6) sand; weak coarse subangular blocky structure; very friable; few medium roots throughout; 1 percent gravel; moderately acid; clear wavy boundary.

Bw4—34 to 41 inches; yellowish brown (10YR 5/6) sand; weak coarse subangular blocky structure; very friable; few medium roots throughout; 3 percent gravel; slightly acid; clear wavy boundary.

Bw5—41 to 51 inches; strong brown (7.5YR 5/6) sand; single grain; loose; 9 percent gravel; slightly acid; clear wavy boundary.

Bw6—51 to 60 inches; strong brown (7.5YR 4/6) sand; single grain; loose; 2 percent gravel; slightly acid; clear wavy boundary.

Bw7—60 to 75 inches; strong brown (7.5YR 4/6) coarse sand; single grain; loose; 4 percent gravel; slightly acid; clear wavy boundary.

Bw8—75 to 80 inches; brown (7.5YR 4/4) sand; single grain; loose; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the solum: 36 to more than 80 inches Content of rock fragment: 0 to 10 percent throughout the series control section

Rock fragments: Mixed lithology with a high content of shale. 2 to 5 millimeters in size

Particle-size control section: Silt content plus clay content averages 10 percent or more

Ap horizon:

Hue—7.5YR or 10YR Value—3 or 4, 6 or more dry Chroma-2 to 4

Texture—loamy sand

Reaction—very strongly acid to neutral depending on liming history

E horizon (where present):

Hue—10YR

Value-5 or 6

Chroma—3 or 4

Bw horizon or BC horizon (where present):

Hue-7.5YR or 10YR

Value—4 or 5

Chroma-3 to 6

Texture—loamy sand, loamy fine sand, sand, or fine sand; ranges to coarse sand in the lower part

Reaction—very strongly acid to neutral

C horizon (where present):

Hue-10YR

Value-4 to 6

Chroma—2 to 6; chroma of 2 is due to the inherent color of the sand and not to aquic conditions

Texture—sand, coarse sand, or fine sand; stratified thin bands of loamy sand in some pedons

Reaction—strongly acid to neutral

Waterford Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Waterford loam, in a nearly level area in the woods at an elevation of 781 feet; Elkhart County, Indiana; about 1 mile south and 0.5 mile west of the center of Goshen; 2,367 feet north and 2,143 feet east of the southwest corner of sec. 16, T. 36 N., R. 6 E.; USGS Goshen NW, Indiana, topographic quadrangle; lat. 41 degrees 34 minutes 22 seconds N. and long. 85 degrees 50 minutes 26 seconds W., NAD 27; UTM Zone 16, 596662 Easting and 4602999 Northing, NAD 83.

A—0 to 8 inches; dark brown (10YR 3/3) loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many medium roots throughout; common very fine and fine interstitial and tubular pores with moderate continuity; neutral; clear wavy boundary.

Bw1—8 to 15 inches; dark yellowish brown (10YR 4/4)

fine sandy loam; weak medium subangular blocky structure; very friable; common very fine to medium roots throughout; many fine and medium interstitial and tubular pores with moderate continuity; very few distinct dark brown (10YR 3/3) organic coatings in root channels and pores; common fine distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; neutral; clear wavy boundary.

- Bw2—15 to 24 inches; brown (10YR 4/3) fine sandy loam; moderate medium subangular blocky structure; friable; common very fine to medium roots throughout; many very fine to medium interstitial and tubular pores with moderate continuity; many fine faint brown (7.5YR 4/4) masses that have accumulated iron oxide and are in the matrix; few fine faint dark brown (7.5YR 3/2) rounded iron and manganese oxide concretions; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- Bw3—24 to 36 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; common very fine to medium roots throughout; many very fine to medium interstitial and tubular pores with moderate continuity; common fine distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; few fine distinct very dark brown (7.5YR 2.5/2) rounded iron and manganese oxide concretions; many fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.
- Bw4—36 to 41 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine interstitial and tubular pores with moderate continuity; many medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; few fine prominent black (N 2.5/0) rounded iron and manganese oxide concretions; many medium distinct gray (10YR 5/1) iron depletions in the matrix; neutral; clear wavy boundary.
- 2C—41 to 46 inches; brown (10YR 5/3) loamy sand; single grain; loose; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; moderately alkaline; clear wavy boundary.
- 3Ab—46 to 50 inches; black (10YR 2/1) loamy sand; massive; very friable; common fine interstitial and tubular pores with moderate continuity; common

medium distinct gray (10YR 5/1) iron depletions in the matrix; neutral; clear wavy boundary.

3Cb—50 to 60 inches; brown (10YR 5/3) gravelly coarse sand; single grain; loose; many medium distinct gray (10YR 5/1) iron depletions in the matrix; 25 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

3Cgb—60 to 80 inches; dark gray (10YR 4/1) gravelly coarse sand; single grain; loose; 30 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: 24 to 46 inches

Thickness of the loamy alluvium: 24 to 46 inches

A horizon:

Hue—10YR

Value—3 or 4

Chroma—2 or 3

Texture—loam

Reaction—slightly acid to slightly alkaline Content of rock fragments—0 to 7 percent gravel

Bw or Bg horizon:

Hue-10YR

Value—4 or 5

Chroma-2 to 6

Texture—loam, sandy loam, fine sandy loam, or sandy clay loam

Reaction—slightly acid to slightly alkaline Content of rock fragments—0 to 7 percent gravel

2C or 2Cg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—sand, loamy sand, or coarse sand

Reaction—neutral or slightly alkaline

Content of rock fragments—0 to 14 percent gravel

3Ab horizon:

Hue—10YR

Value—2 or 3

Chroma—1 or 2

Texture—loamy sand

Reaction—slightly acid or neutral

Content of rock fragments—0 to 14 percent gravel

3Cb or 3Cgb horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 to 4

Texture—very gravelly coarse sand or gravelly coarse sand

Reaction—slightly alkaline or moderately alkaline Content of rock fragments—15 to 40 percent gravel

Whitaker Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Whitaker loam, on a less than 1 percent slope, in a cultivated field at an elevation of about 800 feet; Marshall County, Indiana; about 2 miles south of Bremen; 1,000 feet north and 2,100 feet west of the southeast corner of sec. 11, T. 34 N., R. 3 E.; USGS Bremen, Indiana, topographic quadrangle; lat. 41 degrees 24 minutes 28.6 seconds N. and long. 86 degrees 08 minutes 39.1 seconds W., NAD 27; UTM Zone 16, 571529 Easting and 4584404 Northing, NAD 83.

- Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
- E—9 to 17 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; friable; common fine roots; common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear wavy boundary.
- Btg1—17 to 27 inches; grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; many distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses that have accumulated iron oxide and are in the matrix; common fine black (10YR 2/1) iron and manganese oxide concretions; 2 percent fine gravel; strongly acid; gradual wavy boundary.
- Btg2—27 to 39 inches; grayish brown (10YR 5/2) sandy clay loam; moderate medium subangular blocky structure; firm; many distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common fine black (10YR 2/1) iron and manganese oxide concretions; 2 percent fine gravel; moderately acid; clear wavy boundary.
- BC—39 to 48 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky

- structure; friable; common medium distinct gray (10YR 5/1) iron depletions in the matrix; slightly acid; clear wavy boundary.
- C1—48 to 58 inches; brown (10YR 5/3) stratified silt loam and loam; massive; friable; thin strata of loamy sand and fine sand; common medium distinct yellowish brown (10YR 5/6) masses that have accumulated iron oxide and are in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly effervescent; moderately alkaline; clear wavy boundary.
- C2—58 to 86 inches; brown (10YR 5/3) stratified loamy fine sand, fine sand, loamy sand, and sand; massive; very friable and loose; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 32 to 60 inches

Thickness of the silty sediments: 0 to 20 inches

Content of rock fragments: 0 to 5 percent fine gravel in
the solum; 0 to 14 percent fine gravel in the
substratum

Ap horizon:

Hue—10YR

Value—4 to 6

Chroma-2 or 3

Texture—loam

Reaction—moderately acid to neutral

E or BE horizon:

Hue—10YR

Value—4 or 5

Chroma—2 or 3

Texture—loam, sandy loam, or fine sandy loam; less commonly silty clay loam or silt loam Reaction—moderately acid to neutral

Btg or Bt horizon:

Hue-7.5YR to 2.5Y

Value-4 to 6

Chroma-1 to 6

Texture—loam, sandy loam, clay loam, or sandy clay loam; silty clay loam up to 10 inches thick in the upper part of some pedons

Reaction—strongly acid or moderately acid in the upper part; moderately acid to neutral in the lower part

BC or BCg horizon:

Hue—7.5YR to 2.5Y

Value-4 to 6

Chroma—1 to 6

Texture—loam or sandy loam

Reaction—moderately acid to slightly alkaline

C or Cg horizon:

Hue-10YR or 2.5Y

Value—4 to 6

Chroma—1 to 6

Texture—stratified loam, silt loam, sandy loam, fine sandy loam, or very fine sandy loam; strata of coarse sandy loam, loamy coarse sand, coarse sand, sand, loamy fine sand, fine sand, or loamy sand in some pedons

Reaction—slightly acid to moderately alkaline

Williamstown Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Hapludalfs

Typical Pedon for MLRA 111

Williamstown loam, on a slope of 4 percent, in a pasture at an elevation of 865 feet; Elkhart County, Indiana; about 4.5 miles east and 1.25 miles north of Nappanee; 1,475 feet south and 2,030 feet east of the northwest corner of sec. 26, T. 35 N., R. 5 E.; USGS Nappanee East, Indiana, topographic quadrangle; lat. 41 degrees 27 minutes 37 seconds N. and long. 85 degrees 55 minutes 05 seconds W., NAD 27; UTM Zone 16, 590357 Easting 4590425 Northing, NAD 83.

- Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many very fine and fine roots throughout; common very fine and fine tubular pores; 2 percent gravel; strongly acid; abrupt smooth boundary.
- Bt1—7 to 12 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; many very fine and fine roots throughout; common very fine and fine tubular pores; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; common distinct dark grayish brown (10YR 4/2) organic coatings in root channels and pores; 2 percent gravel; strongly acid; clear wavy boundary.
- Bt2—12 to 20 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; firm; common very fine roots throughout; common very fine and fine tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; few distinct dark grayish brown (10YR 4/2) organic coatings in root channels and pores; few faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; few

- black (N 2.5/0) masses in which iron and manganese oxide have accumulated; common medium prominent grayish brown (10YR 5/2) iron depletions; 2 percent gravel; strongly acid; clear wavy boundary.
- Bt3—20 to 27 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; firm; common very fine roots throughout; common very fine and fine tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; few distinct dark grayish brown (10YR 4/2) organic coatings in root channels and pores; few faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; few black (N 2.5/0) masses in which iron and manganese oxide have accumulated; common medium prominent grayish brown (10YR 5/2) iron depletions; 2 percent gravel; neutral; clear wavy boundary.
- Bt4—27 to 34 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common very fine roots throughout; common very fine and fine tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds and in pores; 2 percent gravel; neutral; clear wavy boundary.
- BCt—34 to 39 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; firm; few very fine roots between peds; few fine tubular pores; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; 5 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- Cd1—39 to 56 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure parting to weak fine subangular blocky; very firm; few fine tubular pores; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; 5 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.
- Cd2—56 to 66 inches; yellowish brown (10YR 5/4) loam; weak very coarse prismatic structure parting to weak medium platy; very firm; few fine tubular pores; few faint dark gray (10YR 4/1) clay films on faces of peds; 5 percent gravel; strongly effervescent; slightly alkaline; clear wavy boundary.
- Cd3—66 to 80 inches; yellowish brown (10YR 5/4) loam; weak very coarse prismatic structure; very firm; yellowish brown (10YR 5/6) oxidized zone 2 to 5 millimeters thick along vertical fracture planes that are 6 to 10 inches apart; 5 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 40 inches

Depth to carbonates: 20 to 40 inches Thickness of the loess: 0 to 22 inches

Particle-size control section: 27 to 35 percent clay Rock fragments: Dominantly of limestone or crystalline lithology

Other features: Some pedons have a BE horizon with chroma of 4 to 6; some pedons have a CBt or 2CBt horizon.

Ap horizon:

Hue-10YR

Value-4 or 5

Chroma—2 or 3

Texture—clay loam, loam, or fine sandy loam

Reaction—strongly acid to neutral

Content of rock fragments—0 to 10 percent

A horizon (where present):

Hue—10YR

Value—3

Chroma—1

Reaction—strongly acid to neutral

Content of rock fragments—0 to 10 percent Thickness of the horizon—up to 6 inches

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Bt or 2Bt horizon: Hue—10YR

Value-4 or 5

Chroma-3 to 6

Texture—silty clay loam or clay loam

Reaction—very strongly acid to neutral

Content of rock fragments—0 to 10 percent

BCt or 2BCt horizon:

Hue-10YR

Value-4 to 6

Chroma—3 to 6

Texture—loam or fine sandy loam

Reaction—neutral to moderately alkaline

Content of rock fragments—1 to 10 percent

Cd or 2Cd horizon:

Hue-10YR

Value—5 or 6

Chroma—3 or 4

Texture—loam or less commonly fine sandy loam Reaction—slightly alkaline or moderately alkaline Content of rock fragments—1 to 10 percent

Wunabuna Series

Taxonomic classification: Fine, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon for the Series

Wunabuna silt loam, in a linear, nearly level area in a cultivated field at an elevation of 773 feet; Elkhart County, Indiana; about 1.5 miles southwest of Dunlap; 2,481 feet south and 90 feet west of the northeast corner of sec. 34, T. 37 N., R. 5 E.; USGS Foraker, Indiana, topographic quadrangle; lat. 41 degrees 36 minutes 58 seconds N. and long. 85 degrees 55 minutes 35 seconds W., NAD 27; UTM Zone 16, 589446 Easting and 4607717 Northing, NAD 83.

- Ap—0 to 7 inches; dark brown (10YR 3/3) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine and medium roots throughout; common fine to coarse interstitial and tubular pores throughout; neutral; abrupt smooth boundary.
- A1—7 to 15 inches; dark brown (10YR 3/3) silty clay loam, light brownish gray (10YR 6/2) dry; weak coarse subangular blocky structure; very firm; common fine and medium roots throughout; common fine to coarse interstitial and tubular pores throughout; neutral; clear smooth boundary.
- A2—15 to 21 inches; dark brown (10YR 3/3) silty clay loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; common fine to coarse tubular pores throughout; neutral; clear smooth boundary.
- Bg—21 to 32 inches; dark gray (10YR 4/1) silty clay loam; moderate medium angular blocky structure; firm; common fine and medium roots throughout; common fine to coarse tubular pores throughout; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; many fine and medium distinct dark yellowish brown (10YR 4/4) masses that have accumulated iron oxide and are in the matrix; neutral; clear smooth boundary.
- 2Ab—32 to 38 inches; very dark gray (10YR 3/1) silty clay; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; common coarse tubular pores throughout; common distinct dark grayish brown (10YR 4/2) clay depletions in root channels and pores; neutral; abrupt smooth boundary.
- 3Oa1—38 to 60 inches; muck (sapric material), black (10YR 2/1) broken face, black (N 2.5/0) rubbed, very dark brown (10YR 2/2) after exposure to air; about 5 percent fiber, 1 percent rubbed; massive; very friable; common coarse interstitial and tubular pores throughout;
- slightly alkaline; gradual smooth boundary. 3Oa2—60 to 80 inches; muck (sapric material), black (10YR 2/1) broken face, black (N 2.5/0) rubbed,

very dark brown (10YR

2/2) after exposure to air; about 10 percent fiber, 3 percent rubbed; massive; very friable; slightly acid.

Range in Characteristics

Depth to organic materials: 16 to 40 inches

Particle-size control section: More than 35 percent clay

Ap or A horizon:

Hue—10YR

Value—2 to 4; where values are 2 or 3, dry values

are 6 or more

Chroma—1 to 3

Texture—silt loam

Reaction—slightly acid to slightly alkaline

Bg horizon:

Hue-10YR or 2.5Y

Value—4 or 5

Chroma—1 or 2

Texture—silt loam, silty clay loam, or silty clay

Reaction—slightly acid to slightly alkaline

2Ab horizon:

Hue-10YR or N

Value—2, 2.5, or 3

Chroma—0 to 3

Texture—silt loam, silty clay loam, or silty clay

Reaction—slightly acid to slightly alkaline

30a horizon:

Hue—10YR or N

Value—2, 2.5, or 3

Chroma—0 to 2

Texture—muck (sapric material)

Reaction—strongly acid to slightly alkaline

Formation of the Soils

This section discusses the factors and the processes of soil formation as it relates to soils developed in St. Joseph County.

Factors of Soil Formation

Soil forms through physical and chemical weathering of geologic material. Soil development is determined by additions to the soil; losses from the soil; translocations within the soil; and transformations within the soil. The characteristics of a soil at any given point are determined by the physical and mineralogical composition of the parent material; the climate under which the soil material was deposited and has existed since deposition; the plant and animal life associated with the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material.

Climate and plant and animal life, chiefly plants, are active factors of soil formation. These factors act on the parent material that has accumulated through the weathering of rock and slowly change it into a natural body that has genetically related horizons. The effects of climate and plant and animal life are bound by relief. Within St. Joseph County the weather patterns do not change significantly; therefore, plants are the major active factor of soil formation. The parent material affects the kind of soil profile that forms. Finally, time is needed for the transformation of the parent material into a soil. Some time is always required for the differentiation of soil horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four.

Climate

Climate helps to determine the kind of plant and animal life on and in the soil, the amount of water available for the weathering of minerals, the translocation of soil material, and the rate of chemical reaction in the soil. These influences are important, but they affect large areas rather than relatively small areas, such as those the size of a county.

The climate in St. Joseph County is cold in winter, hot and humid in summer. It is presumably similar to the climate under which the soils formed. The soils in the county differ from soils that formed under a dry, warm climate and from those that formed under a hot, moist climate. The climate is uniform throughout the county. There are no major differences among the soils resulting from any differences in climate. More detailed information about the climate is available under the heading "General Nature of the County."

Plant and Animal life

Plants have been one of the principal organisms influencing the soils in St. Joseph County. Bacteria, fungi, soil micro-organisms, and earthworms also have affected the formation of the soil in the county. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material in and on the soil depends on the kind of native plants that grew on the soil. The remains of these plants accumulated in the surface layer, decayed, and eventually became humus. The roots of the plants provided channels for the downward movement of water through the soil, and they added organic matter as they decayed. Bacteria and soil micro-organisms helped to break down the organic matter into plant nutrients.

The native vegetation in St. Joseph County was mainly deciduous trees, but a few areas supported prairie grasses. Differences in natural soil drainage and variations in the kind of parent material affected the composition of the vegetative cover. Some somewhat poorly drained soils on the till plain, such as Crosier, formed from an influence of prairie grasses. Other well drained upland soils, such as Riddles, mainly supported a variety of oak, walnut, and hickory. The somewhat excessively drained Coloma soils supported white oak and black oak. Wet soils, such as Maumee and Rensselaer soils, primarily supported pin oak, black willow, cottonwood, and sycamore. The soils that formed dominantly under forest vegetation

generally have less organic matter and are more leached than the soils that formed dominantly under prairie grasses.

Relief

Relief, or topography, has a marked affect on the soils in St. Joseph County through its influence on natural soil drainage, runoff, erosion, plant cover, and soil temperature. Slopes range from nearly level to very steep. Runoff is most rapid on the more steep slopes. Water is temporarily or permanently ponded in the lower areas.

Natural soil drainage in the county ranges from excessively drained on sandy ridgetops to very poorly drained in depressions filled with organic materials. Through its affect on soil aeration, drainage determines the color of the soil. Water and air move freely through well drained soils but very slowly through very poorly drained soils. In well aerated soils, the iron compounds that give soils their color are brightly colored and oxidized. The excessively drained Tyner soils are an example. Antung and other poorly aerated, very poorly drained soils are dull gray because the iron has been reduced, making it soluble, leaving the mineral color.

The soils with intermediate drainage are poorly drained, somewhat poorly drained, moderately well drained, well drained, and somewhat excessively drained. These soils have varying depths to the water table and varying depths to the reduced gray colors. Somewhat excessively drained and well drained soils do not have water table features within a depth of 40 inches of the surface.

Parent Material and Geology

Parent material is the geologic mass in which a soil forms. It can be consolidated, such as bedrock or unconsolidated, such as glacial materials, recent alluvium, wind blown materials, or lake bed deposits. In St. Joseph County, the parent materials are unconsolidated and were deposited by continental glaciers and by meltwater from those glaciers. The parent materials are glacial till, glacial outwash, lacustrine deposits (lakebed materials), and recent alluvium. Deep organic matter deposits can also be found. Parent material determines the limits of the chemical and mineralogical composition of the soil. Some of these materials were reworked and redeposited by the subsequent actions of water and wind. Some authorities believe the most recent glaciers covered the county about 15,000 years ago and finally retreating about 12,000 years ago. Although the parent materials are of similar glacial origin, their properties vary greatly, sometimes within small areas, depending on how the materials were deposited.

Glacial till is material deposited directly by glaciers with little or no water action. It consists of particles of different sizes that are mixed together. The small pebbles in glacial till have sharp corners, indicating that they have not been worn by moving water. The glacial till in St. Joseph County is mainly from the Huron-Saginaw lobe and includes a small portion from the Erie lobe and the Michigan lobe. This glacial till is calcareous, has a variety of densities and is sandy loam, loam, or clay loam. Crosier soils are an example of soils that formed in firm, loamy glacial till. These soils typically are medium textured and have a well developed structure.

Glacial outwash material was deposited by moving water from melting glaciers. The size of the particles that make glacial outwash varies, depending on the velocity of the water that carried the material. Water with high velocity deposited those particles heavy enough to fall out of current. These were usually boulders, cobbles, or gravel. Water with slower velocity deposited materials smaller in size. Clay, silt, and very fine sand were washed down stream. Outwash deposits generally occur as layers of similar-size particles, such as sandy loam, sand, gravel, and other coarse particles, depending on the weather during glacial melt. The warmer the weather, the more the glaciers melted and the faster the water was moving. Therefore, the larger materials were deposited. The cooler the weather, the less the glaciers melted and the slower the water was moving. Therefore, the smaller materials were deposited. Gilford soils are an example of soils that formed in glacial outwash material.

Lacustrine material was deposited by still, ponded, or very slow moving glacial meltwater. Since the coarser fragments dropped out of the moving water as glacial outwash, only the finer particles such as very fine sand, silt, and clay remain to settle in still water. Lacustrine deposits are silty or clayey. Lacustrine deposits are usually low and flat on the landscape, however, there are some lacustrine deposits that formed on the top of glaciers. Water accumulated in the low areas on top of the glacier and captured the materials blowing over the top of the glacier. When the glacier melted, these deposits settled as hills on the landscape. The soils in St. Joseph County that formed in these deposits are medium to fine textured. Del Rey and Milford soils are an example of soils that formed in lacustrine materials.

Recent alluvium was deposited by floodwater along present streams. This material varies in texture,

depending on the speed of the water from which it was deposited. Abscota and Cohoctah are examples of soils that formed in recent alluvium.

Organic material occurs as deposits of plant remains. After the glaciers melted out of the area, water was ponded in depressions, in kettle lakes on outwash plains, lake plains, and till plains. Grasses and sedges growing around the edges of these lakes eventually died and their remains accumulated in these depressions. As a result of the wetness and subsequent lack of oxygen, the plant remains decomposed very slowly to an unrecognizable material, labeled as muck. As the ponded areas evolved, water-tolerant trees grew and died, depositing their remains in the water and adding to the accumulation. The ponded areas were eventually filled with organic material. Houghton soils are an example of soils that formed in deep organic material. Other organic deposits are formed dependant on the depth of the ponded water. Generally, with depth, the organisms are different in ponded areas. Medium depth lakes have many species of amphibians and the products of their existence accumulates as a layer of limnic material called coprogenous earth. This material is olive or green in color and when dry it does not absorb water. Muskego soils are an example of soils that formed in organic material and a deep layer of coprogenous earth. Deep lakes contained organisms with calcium carbonate exoskeletons or bone structures and the product of their existence accumulates as a limnic material called marl. Marl is very high in calcium carbonate and has a very high pH. Edwards soils are an example of soils that formed in organic material and a deep layer of marl.

Time

Generally, a long time is required for the processes of soil formation to result in the formation of distinct horizons. Differences in the length of time that the parent material has been in place and the amount of disturbance, such as erosion or deposition, are commonly reflected in the degree of profile development.

The soils in St. Joseph County range from recently deposited, in the flood plains, to approximately 15,000 years old, in the uplands. The glacial deposits in which many of the soils formed have been exposed to the soil-forming processes long enough for the development of distinct horizons. Soils that formed along flood plains are very young because there is

new material being deposited frequently, and the soilforming process starts again with each disturbance.

Processes of Soil Formation

Several processes have been involved in the formation of the soils in St. Joseph County (Benton, 1977; Jenny, 1980; Ruhe, 1956; Thornbury, 1969). These processes are additions, such as organic matter; losses or dissolution, transfer, and removal of compounds such as calcium carbonate and bases; the liberation and translocation of silicate clay minerals; and transformation such as reduction and transfer of iron or weathering of silicate clays. In most of the soils, more than one of these processes have helped to differentiate horizons.

Some organic matter has accumulated in the surface layer of all the soils in the county (Simonson, 1959; Stevenson, 1982). The content of organic matter of most soils is moderate, with a range from very low to very high. Generally, the soils that have the most organic matter, such as the Houghton soils, have a thick, dark layer of organic matter on the surface and are very poorly drained.

Carbonates and bases have been leached from the upper horizons of nearly all the soils in St. Joseph County. Leaching of carbonates and salts preceded the translocation of silicate clay minerals. Most of the carbonates and the salts have been leached from the A and B horizons of most soils. Leaching is indicated by the absence of carbonates and by an acid reaction.

Clay accumulates in pores and on the faces of structural units along which water moves. The leaching of bases and the subsequent translocation of silicate clays are among the more important processes of horizon differentiation in the county. Miami soils are an example of soils in which translocated silicate clay has accumulated in the Bt horizon.

Gleying, or the reduction and transfer of iron, has occurred in all of the very poorly drained to moderately well drained soils. In these naturally wet soils, this process has significantly affected horizon differentiation. A gray color in the subsoil indicates the reduction and redistribution of iron oxides. Reduction is commonly accompanied by a transfer of the iron, either from upper horizons to lower horizons or removal of the iron from the soil profile. Mottles (now referred to as redoximorphic features), which are in soil horizons that have been reduced, indicate the segregation of iron oxide (Birkeland, 1974; Birkeland, 1984; Buol and others, 1980; Franzmeier, 1997; Hans, 1941).

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Glossary

- **ABC soil.** A soil having an A, a B, and a C horizon. **Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.
- **AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.
- Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
- **Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
- **Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
- **Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.
- Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.
- **Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.
- **Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.
- **Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.
- **Aspect.** The direction in which a slope faces.
- **Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.
- Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the

amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

- **Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
- **Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet
- Basal till. Compact glacial till deposited beneath the ice.

 Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- **Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- **Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- **Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- **Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- **Blowout.** A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

- **Bottom land.** The normal flood plain of a stream, subject to flooding.
- **Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- **Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- **Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- **Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- **Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- **Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- **Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- **Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- **Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- **Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- **Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

- Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse textured soil. Sand or loamy sand.
- **Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- **COLE (coefficient of linear extensibility).** See Linear extensibility.
- **Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- **Compressible** (in tables). Excessive decrease in volume of soft soil under load.
- Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.
- Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.
- Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses

- and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.
- **Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.
- Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
- **Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.
- **Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
- **Coprogenous earth (sedimentary peat).** Fecal material deposited in water by aquatic organisms.
- **Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- **Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- **Cropping system.** Growing crops according to a planned system of rotation and management practices.
- **Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- **Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- **Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- Culmination of the mean annual increment (CMAI).

 The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the

- stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- **Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- **Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- **Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- **Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- **Depth to rock** (in tables). Bedrock is too near the surface for the specified use.
- **Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."
- **Drainage, surface.** Runoff, or surface flow of water, from an area.
- **Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.
- **Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

- **Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.
- **Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.
- **Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

 Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
 - Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- **Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.
- **Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- **Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.
- **Fast intake** (in tables). The rapid movement of water into the soil.
- **Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- **Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the ovendry

- weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*
- **Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil. Sandy clay, silty clay, or clay.

 Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- **First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.
- **Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Flow till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.
- **Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- **Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- **Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.
- **Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.
- **Fragile** (in tables). A soil that is easily damaged by use or disturbance.
- **Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.
- **Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- **Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

- **Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
- **Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
- **Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.
- **Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- **Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- **Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- **Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- **Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- **Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- **Ground water.** Water filling all the unblocked pores of the material below the water table.
- **Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- **Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- **Head out.** To form a flower head.
- **Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- Hemic soil material (mucky peat). Organic soil

- material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.
- Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:
 - O horizon.—An organic layer of fresh and decaying plant residue.
 - A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.
 - *E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.
 - B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.
 - C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

- **Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.
- Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.
- **Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.
- **Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.
- **Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.
- **Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.
- **Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.
- Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.
- Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time.

 Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2very low
0.2 to 0.4low
0.4 to 0.75 moderately low
0.75 to 1.25 moderate
1.25 to 1.75 moderately high
1.75 to 2.5 high
More than 2.5 very high

- **Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.
- Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.
- Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.
- Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are: Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

 Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

 Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

 Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of closegrowing crops or in orchards so that it flows in only
 - *Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

one direction.

- Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
- Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system. Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
- Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.
- **Kame.** An irregular, short ridge or hill of stratified glacial drift.
- **Knoll.** A small, low, rounded hill rising above adjacent landforms.
- K_{sat}. Saturated hydraulic conductivity. (See Permeability.)
- **Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.
- Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

- **Leaching.** The removal of soluble material from soil or other material by percolating water.
- Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.
- **Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.
- **Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.
- **Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.
- Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
- **Low strength.** The soil is not strong enough to support loads.
- **Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.
- Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.
- **Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.
- **Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.
- **Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.
- **Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

- **Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- **Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.
- Major Land Resource Area (MLRA). Divisions of land areas based upon geographic differences in soils, climate, water resources, and land uses.
- **Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- **Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- **Moraine.** An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.
- **Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—few, common, and many; size—fine, medium, and coarse; and contrast—faint, distinct, and prominent. The size measurements are of the diameter along the greatest dimension. Fine indicates less than 5 millimeters (about 0.2 inch); medium, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and coarse, more than 15 millimeters (about 0.6 inch).
- **Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)
- **Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.
- **Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- **Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)
- Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.
- **Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex

- area) of a hillside. The overland waterflow is predominantly divergent.
- Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.
- Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5	percent
Low	0.5 to 1.0	percent
Moderately low	1.0 to 2.0	percent
Moderate	2.0 to 4.0	percent
High	4.0 to 8.0	percent
Very high	more than 8.0	percent

- **Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.
- **Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.
- **Parent material.** The unconsolidated organic and mineral material in which soil forms.
- **Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)
- **Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- **Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.
- **Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- Percolation. The movement of water through the soil.
 Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.
- Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated"

hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

- **Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
- **pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)
- **Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- **Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
- **Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- **Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- **Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- **Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- **Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.
- **Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- **Poor outlets** (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.
- Potential native plant community. See Climax plant community.
- Potential rooting depth (effective rooting depth).

 Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

- Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
- **Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- **Profile**, **soil**. A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules,

concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

- Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.
- Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha, alphadipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.
- **Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II).

- The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.
- **Relief.** The elevations or inequalities of a land surface, considered collectively.
- **Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.
- **Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.
- **Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.
- **Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.
- **Root zone.** The part of the soil that can be penetrated by plant roots.
- Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- **Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- **Sandstone.** Sedimentary rock containing dominantly sand-sized particles.
- Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- **Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- **Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.
- Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

- Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use
- **Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)
- **Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- **Shale.** Sedimentary rock formed by the hardening of a clay deposit.
- **Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- **Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.
- Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- **Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.
- **Silica.** A combination of silicon and oxygen. The mineral form is called quartz.
- Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.
- **Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.
- Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.
- **Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
- Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In

this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 12 percent
Strongly sloping	12 to 18 percent
Moderately steep	18 to 30 percent
Steep	30 to 45 percent
Very steep	45 percent and higher

- **Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.
- **Slow intake** (in tables). The slow movement of water into the soil.
- **Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.
- **Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.
- **Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time
- Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clav	less than 0.002

- **Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.
- Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.
- **Stones.** Rock fragments 10 to 24 inches (25 to 60

- centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.
- **Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.
- **Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.
- Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), and granular. Structureless soils are either single grained (each grain by itself, as in dune sand) or massive (the particles adhering without any regular cleavage, as in many hardpans).
- **Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.
- **Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.
- **Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.
- **Substratum.** The part of the soil below the solum. **Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.
- **Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.
- Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."
- **Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.
- Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

- **Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.
- Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.
- **Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.
- **Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."
- **Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.
- **Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.
- **Tilth**, **soil**. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.
- **Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.
- **Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- **Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.
- **Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- **Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.
- **Upland.** Land at a higher elevation, in general, than

- the alluvial plain or stream terrace; land above the lowlands along streams.
- Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.
- **Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
- Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- **Windthrow.** The uprooting and tipping over of trees by the wind.

Tables



Table 1.--Temperature and Precipitation
(Recorded in the period 1961-90 at South Bend, Indiana)

	Temperature				Precipitation						
				2 years	s in			2 years	s in 10		
Month				10 will 1	have	Average		will 1	have	Average	Average
	Average	Average	Average	Maximum	Minimum	number of	Average			number of	snowfall
	daily	daily		temperature	temperature	growing		Less	More	days with	
	maximum	minimum		higher	lower	degree		than	than	0.10 inch	
			<u> </u>	than	than	days*				or more	
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	30.3	 15.9	 23.1	 56	 -15	 8	 2.25	1.32	 3.08	 5	22.4
February	34.0	 18.6	26.3	 59	 -9	 14	 1.91	1.06	2.66	 5	16.1
March	45.7	29.0	 37.3	 78	 5	 98	3.11	1.88	 4.21	 7	9.7
April	58.6	 38.7	 48.7	 84	 19	 288	3.82	2.33	 5.17	 7	2.4
Мау	70.0	 48.7	 59.4	 89	29	601	3.22	1.87	4.43	 6	0.0
June	79.5	58.6	69.0	 95	 41	871	4.11	2.35	 5.67	7	0.0
July	82.8	63.0	 72.9	 97	 48	1,020	3.82	2.38	 5.11	 6	0.0
August	80.7	61.2	71.0	 95	 45	960	3.67	1.89	5.23	 6	0.0
September	74.1	 54.4	64.2	91	 36	 727	3.62	1.40	 5.49	 6	0.0
October	62.2	43.5	52.8	 84	 26	404	3.08	1.68	4.32	 6	1.0
November	48.5	34.0	41.3	 74	 14	132	3.28	2.05	4.40	 7	8.6
December	 35.3 	 22.3 	 28.8 	 63 	 -6 	 24 	 3.32 	 2.28 	 4.27 	 8 	21.0
Yearly:		 	 	 	 	 	 		 	 	
Average	58.5	40.7	49.6			 	 	 	 	 	
Extreme	104	 -21	 	98	 -15	 	 	 	 	 	
Total		 	 	 	 	 5,146	 39.22	 33.76	 44.47	 76	 81.2

^{*} A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1961-90 at South Bend, Indiana)

I			Temperat	ure		
Probability					1	
į	24 0	F	28 0	F	32 9	F
	or low	er	or low	er	or lov	ver
Į.						
Last freezing		ļ				
temperature		ļ				
in spring:					 	
1 year in 10						
later than	Apr.	20	May	1	May	14
2 year in 10					 	
later than	Apr.	15	Apr.	25	May	9
I						
5 year in 10						
later than	Apr.	5	Apr.	15	Apr.	28
First freezing					 	
temperature		i			İ	
in fall:		į			ĺ	
1 yr in 10					 	
earlier than	Nov.	3	Oct.	14	Oct.	6
		i				
2 yr in 10		ĺ			ĺ	
earlier than	Nov.	8	Oct.	20	Oct.	10
5 yr in 10					 	
earlier than	Nov.	18	Oct.	31	 Oct.	19
	1101.	10		J.		

Table 3.--Growing Season

(Recorded in the period 1961-90 at South Bend,
Indiana)

	Daily minimum temperature During growing season					
	During	growing sea	.5011			
Probability						
	Higher	Higher	Higher			
	than	than	than			
	24 ^O F	28 °F	32 ^O F			
	Days	Days	Days			
		[
9 years in 10	211	176	153			
8 years in 10	216	183	160			
o years in io	210	103	100			
5 years in 10	226	198	173			
İ			İ			
2 years in 10	237	212	186			
1 year in 10	242	220	192			

Table 4.--Acreage and Proportionate Extent of the Soils

Map	 Soil name	Acres	 Percent
symbol			
AahAK	 Abscota loamy sand, 0 to 2 percent slopes, occasionally flooded, brief duration	1,302	0.4
AatAN	Ackerman muck, drained, 0 to 1 percent slopes	232	*
AbhAN	Adrian muck, drained, 0 to 1 percent slopes	4,894	1.7
AbhAU	Adrian muck, undrained, 0 to 1 percent slopes	522	0.2
ApuAN AxvA	Antung muck, drained, 0 to 1 percent slopes Auten loam, 0 to 1 percent slopes	3,350 4,393	1.1
BaaA	Bainter sandy loam, 0 to 1 percent slopes	239	*
BaaB	Bainter sandy loam, 1 to 4 percent slopes	232	*
BaaC2	Bainter sandy loam, 4 to 10 percent slopes, eroded	9	*
BbmA	Baugo silt loam, 0 to 1 percent slopes	3,000	1.0
BmgA	Blount silt loam, 0 to 2 percent slopes	658	0.2
BshA	Brady sandy loam, 0 to 1 percent slopes	3,301	1.1
BsxA	Brems-Morocco loamy sands, 0 to 1 percent slopes	716	0.2
BteA	Brems loamy sand, 0 to 1 percent slopes	189	*
BuuA	Brookston loam, 0 to 1 percent slopes	21,584	7.3
CmbAI	Cohoctah loam, 0 to 1 percent slopes, frequently flooded, brief duration	1,068	0.4
CnbA	Coloma sand, 0 to 2 percent slopes	431	0.1
CnbB CnbC	Coloma sand, 2 to 5 percent slopes Coloma sand, 5 to 10 percent slopes	6,816 1,580	0.5
CnbD	Coloma sand, 10 to 18 percent slopes	39	*
CrrA	Coupee silt loam, 0 to 1 percent slopes	11,473	3.9
CvdA	Crosier loam, 0 to 1 percent slopes	27,297	9.2
CvdB	Crosier loam, 1 to 4 percent slopes	2,260	0.8
CwkA	Crumstown fine sandy loam, 0 to 1 percent slopes	70	*
CwkB	Crumstown fine sandy loam, 1 to 5 percent slopes	364	0.1
DcrA	Del Rey silty clay loam, 0 to 1 percent slopes	1,111	0.4
EchAN	Edwards muck, drained, 0 to 1 percent slopes	1,533	0.5
EchAU	Edwards muck, undrained, 0 to 1 percent slopes	157	*
EcrAN	Edselton muck, drained, 0 to 1 percent slopes	531	0.2
EcrAU	Edselton muck, undrained, 0 to 1 percent slopes Elston sandy loam, 0 to 1 percent slopes	14	*
EmeA GczA	Gilford sandy loam, 0 to 1 percent slopes	147 8,285	2.8
GdnA	Gilford mucky sandy loam, 0 to 1 percent slopes	446	0.2
HfbAN	Henrietta muck, drained, 0 to 1 percent slopes	2,024	0.7
HfbAU	Henrietta muck, undrained, 0 to 1 percent slopes	3	*
HkkA	Hillsdale sandy loam, 0 to 1 percent slopes	347	0.1
HkkB	Hillsdale sandy loam, 1 to 5 percent slopes	2,887	1.0
HknC2	Hillsdale-Oshtemo sandy loams, 5 to 10 percent slopes, eroded	1,418	0.5
HknD2	Hillsdale-Oshtemo sandy loams, 10 to 18 percent slopes, eroded	529	0.2
HkpC2	Hillsdale-Tracy sandy loams, 5 to 10 percent slopes, eroded	1,125	0.4
HkpD2	Hillsdale-Tracy sandy loams, 10 to 18 percent slopes, eroded	549	0.2
HtbAN	Houghton muck, drained, 0 to 1 percent slopes	6,421	2.2
HtbAU JaaAK	Houghton muck, undrained, 0 to 1 percent slopes Jamestown silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration	2,292 255	0.8
MfaA	Martinsville loam, 0 to 1 percent slopes	912	0.3
MfaB2	Martinsville loam, 1 to 5 percent slopes, eroded	1,046	0.4
MfaC2	Martinsville loam, 5 to 10 percent slopes, eroded	256	*
MfrAN	Madaus muck, drained, 0 to 1 percent slopes	496	0.2
MfrAU	Madaus muck, undrained, 0 to 1 percent slopes	13	*
MgcA	Maumee loamy sand, 0 to 1 percent slopes	322	0.1
MgdAN	Martisco muck, drained, 0 to 1 percent slopes	238	*
MhaA	Maumee loamy fine sand, 0 to 1 percent slopes	1,159	0.4
MhbA	Maumee mucky loamy fine sand, 0 to 1 percent slopes	4,331	1.5
MmbC2	Miami loam, 5 to 10 percent slopes, eroded	616	0.2
MmdC3	Miami clay loam, 5 to 10 percent slopes, severely eroded	1,935	0.7
MmdD3 MouA	Miami clay loam, 10 to 18 percent slopes, severely eroded Milford silty clay loam, 0 to 1 percent slopes	327 4,907	0.1
MsaA	Mishawaka sandy loam, 0 to 1 percent slopes	4,907	1./
MtsB2	Morley silt loam, 2 to 6 percent slopes, eroded	684	0.2
MtsC2	Morley silt loam, 6 to 12 percent slopes, eroded	277	*
MubD3	Morley silty clay loam, 12 to 18 percent slopes, severely eroded	264	*
MvhAN	Moston muck, drained, 0 to 1 percent slopes	1,423	0.5
MvhAU	Moston muck, undrained, 0 to 1 percent slopes	11	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
MvkA	 Morocco loamy sand, 0 to 1 percent slopes	1,554	0.5
MwzAN	Muskego muck, drained, 0 to 1 percent slopes	380	0.1
MwzAU	Muskego muck, undrained, 0 to 1 percent slopes	15	*
OkrA	$ {\tt Oshtemo} \ {\tt fine} \ {\tt sandy} \ {\tt loam}, \ {\tt 0} \ {\tt to} \ {\tt 1} \ {\tt percent} \ {\tt slopes} $	178	*
OkrB	Oshtemo fine sandy loam, 1 to 5 percent slopes	155	*
OkrC2	Oshtemo fine sandy loam, 5 to 10 percent slopes, eroded	153	*
OkrD	Oshtemo fine sandy loam, 10 to 18 percent slopes	102	*
OlcA	Oshtemo sandy loam, 0 to 1 percent slopes	10,234	3.5
OlcB OlcC2	Oshtemo sandy loam, 1 to 5 percent slopes	5,751	1.9
OlcD	Oshtemo sandy loam, 10 to 18 percent slopes, eroded	1,887 267	*
OmgA	Osolo loamy sand, 0 to 1 percent slopes	448	0.2
PaaAN	Palms muck, drained, 0 to 1 percent slopes	1,658	0.6
PaaAU	Palms muck, undrained, 0 to 1 percent slopes	341	0.1
Pmg	Pits, gravel	1,204	0.4
PxlA	Psammaquents	111	*
Pxo	Psamments	843	0.3
QuiA	Quinn loam, 0 to 1 percent slopes	16	*
QujA	Quinn sandy loam, 0 to 1 percent slopes	4,966	1.7
RenA	Rensselaer mucky loam, 0 to 1 percent slopes	2,468	0.8
ReyA	$ \mathtt{Rensselaer \ loam, \ 0 \ to \ 1 \ percent \ slopes} $	13,658	4.6
RopA	Riddles-Oshtemo fine sandy loams, 0 to 1 percent slopes	1,663	0.6
RopB	Riddles-Oshtemo fine sandy loams, 1 to 5 percent slopes	9,443	3.2
RopC2	Riddles-Oshtemo fine sandy loams, 5 to 10 percent slopes, eroded	248	*
RopD2	Riddles-Oshtemo fine sandy loams, 10 to 18 percent slopes, eroded	148	*
RoqB	Riddles-Metea complex, 1 to 5 percent slopes	505	0.2
RoqC2	Riddles-Metea complex, 5 to 10 percent slopes, eroded	1,662	0.6
RoqD2	Riddles-Metea complex, 10 to 18 percent slopes, eroded	519	0.2
SdzA SdzaB	Selfridge-Crosier complex, 0 to 1 percent slopes	797 124	0.3
SesA	Selfridge-Brems loamy sands, 1 to 4 percent slopes Schoolcraft loam, 0 to 1 percent slopes	616	0.2
SnlA	Southwest silt loam, 0 to 1 percent slopes	1,556	0.5
TmpA	Tracy sandy loam, 0 to 1 percent slopes	2,625	0.9
TmpB	Tracy sandy loam, 1 to 5 percent slopes	6,152	2.1
TmpC2	Tracy sandy loam, 5 to 10 percent slopes, eroded	3,419	1.2
TmpD	Tracy sandy loam, 10 to 18 percent slopes	1,615	0.5
TnwA	Troxel silt loam, 0 to 1 percent slopes	1,125	0.4
TxuA	Tyner loamy sand, 0 to 1 percent slopes	3,433	1.2
TxuB	Tyner loamy sand, 1 to 5 percent slopes	725	0.2
TxuC	Tyner loamy sand, 5 to 10 percent slopes	667	0.2
TxuD	Tyner loamy sand, 10 to 18 percent slopes	643	0.2
TxuF	Typer loamy sand, 18 to 45 percent slopes	2	*
Uam	Udorthents, loamy	101	*
UdeA UdeB	Urban land-Bainter complex, 0 to 1 percent slopes	1,962 221	0.7
UdeC	Urban land-Bainter complex, 1 to 4 percent slopes Urban land-Bainter complex, 4 to 10 percent slopes	120	*
UdkA	Urban land-Brady complex, 0 to 1 percent slopes	268	"
UdzA	Urban land-Auten complex, 0 to 1 percent slopes	578	0.2
UeaA	Urban land-Crosier complex, 0 to 3 percent slopes	59	*
UeqA	Urban land-Gilford complex, 0 to 1 percent slopes	4,947	1.7
UewA	Urban land-Brems-Morocco complex, 0 to 1 percent slopes	1,116	0.4
UfbA	Urban land-Brookston complex, 0 to 1 percent slopes	14	*
UfhA	Urban land-Coloma complex, 0 to 2 percent slopes	1,545	0.5
UfhB	Urban land-Coloma complex, 2 to 5 percent slopes	1,522	0.5
UfhC	Urban land-Coloma complex, 5 to 10 percent slopes	812	0.3
UfmA	Urban land-Coupee complex, 0 to 1 percent slopes	2,119	0.7
UfrA	Urban land-Del Rey complex, 0 to 1 percent slopes	84	*
UftA	Urban land-Elston complex, 0 to 1 percent slopes	114	*
UfzA	Urban land-Mishawaka complex, 0 to 1 percent slopes	729	0.2
UgaA	Urban land-Morocco complex, 0 to 1 percent slopes	2,533	0.9
UglA	Urban land-Osolo complex, 0 to 1 percent slopes	903	0.3
UgrA	Urban land-Rensselaer complex, 0 to 1 percent slopes	141	*
UgsA	Urban land-Riddles-Oshtemo complex, 0 to 1 percent slopes	394	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
			!
UgsB	Urban land-Riddles-Oshtemo complex, 1 to 5 percent slopes	350	0.1
UgvA	Urban land-Tyner complex, 0 to 1 percent slopes	21,281	7.2
UgvB	Urban land-Tyner complex, 1 to 5 percent slopes	2,004	0.7
UgvC	Urban land-Tyner complex, 5 to 10 percent slopes	1,744	0.6
UgvD	Urban land-Tyner complex, 10 to 18 percent slopes	722	0.2
UhmA	Urban land-Hillsdale complex, 0 to 1 percent slopes	26	*
UhmB	Urban land-Hillsdale complex, 1 to 5 percent slopes	849	0.3
UhoC	Urban land-Hillsdale-Oshtemo complex, 5 to 10 percent slopes	88	*
UhoD	Urban land-Hillsdale-Oshtemo complex, 10 to 18 percent slopes	4	*
UhpC	Urban land-Hillsdale-Tracy complex, 5 to 10 percent slopes	504	0.2
UhpD	Urban land-Hillsdale-Tracy complex, 10 to 18 percent slopes	63	*
UhwA	Urban land-Martinsville complex, 0 to 1 percent slopes	485	0.2
UhwB	Urban land-Martinsville complex, 1 to 5 percent slopes	541	0.2
UhwC	Urban land-Martinsville complex, 5 to 10 percent slopes	104	*
UkaA	Urban land-Maumee complex, 0 to 1 percent slopes	2,243	0.8
UkeA	Urban land-Milford complex, 0 to 1 percent slopes	47	*
UkxA	Urban land-Oshtemo complex, 0 to 1 percent slopes	1,358	0.5
UkxB	Urban land-Oshtemo complex, 1 to 5 percent slopes	313	0.1
UkxC	Urban land-Oshtemo complex, 5 to 10 percent slopes	11	*
UmfB	Urban land-Riddles-Metea complex, 1 to 5 percent slopes	2	*
UmfC	Urban land-Riddles-Metea complex, 5 to 10 percent slopes	40	*
UmfD	Urban land-Riddles-Metea complex, 10 to 18 percent slopes	6	*
UmpA	Urban land-Schoolcraft complex, 0 to 1 percent slopes	965	0.3
UmuA	Urban land-Southwest complex, 0 to 1 percent slopes	67	*
UmwA	Urban land-Tracy complex, 0 to 1 percent slopes	1,333	0.5
UmwB	Urban land-Tracy complex, 1 to 5 percent slopes	1,664	0.6
UmwC	Urban land-Tracy complex, 5 to 10 percent slopes	561	0.2
UmwD	Urban land-Tracy complex, 10 to 18 percent slopes	108	*
UmxA	Urban land-Troxel complex, 0 to 1 percent slopes	130	
UnoA	Urban land-Whitaker complex, 0 to 1 percent slopes	173	*
UnqB	Urban land-Williamstown-Crosier complex, 1 to 5 percent slopes	8	*
UntA	Urban land-Wunabuna complex, 0 to 1 percent slopes	5	*
Usl	Udorthents, rubbish	314	0.1
W	Water, unclassified	3,077	1.0
WcnAI	Waterford loam, 0 to 2 percent slopes, frequently flooded, long duration	190	*
WoaA	Williamstown loam, 0 to 1 percent slopes	208	*
Woan Woan2		681	1
	Williamstown loam, 1 to 5 percent slopes, eroded		0.2
WoaC2	Williamstown loam, 5 to 10 percent slopes, eroded	20	
WobB	Williamstown-Crosier loams, 1 to 5 percent slopes	1,356	0.5
WrxAN	Wunabuna silt loam, drained, 0 to 1 percent slopes	504	0.2
WtbA	Whitaker loam, 0 to 1 percent slopes	1,265	0.4
WujB	Williamstown-Moon complex, 1 to 5 percent slopes	339	0.1
	Total	295,424	100.0

^{*} Less than 0.1 percent.

Table 5.--Main Cropland and Pastureland Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table.)

Soil name and map symbol	Cropland limitations and hazards	 Pastureland limitations and hazards
	1	
ahAK:		
Abscota	Flooding, wind erosion, low available water capacity.	Flooding, wind erosion, low available water capacity.
atAN:	i	
Ackerman	erosion, subsidence, moderate	Ponding, wetness, trafficability limitation, wind erosion, subsidence.
bhAN:	İ	
Adrian		Ponding, wetness, trafficability limitation, wind erosion, subsidence.
bhAU:		
Adrian		Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
.puAN:		
Antung	erosion, subsidence, moderate	Ponding, wetness, trafficability limitation, wind erosion, subsidence.
xvA:		
Auten	-	Trafficability limitation, limited rooting depth (san and gravel), low pH.
BaaA:		
Bainter	- Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
BaaB:		
Bainter	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
BaaC2:		
Bainter	· -	Low pH, water erosion, wind erosion.
BbmA:		
Baugo	· ·	Trafficability limitation, pH.
mgA:		
Blount		Trafficability limitation, pH.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Cropland	!
	Pastureland
limitations and hazards	limitations and hazards
<u> </u>	
-	Trafficability limitation, low pH, wind erosion.
İ	
-	Low pH, wind erosion, low available water capacity.
-	
İ	
	Low pH, wind erosion, low available water capacity.
Ponding, wetness.	Ponding, wetness, trafficability limitation.
İ	
Flooding, wetness, high pH.	Flooding, wetness, trafficability limitation, high pH.
	Low pH, wind erosion, low available water capacity.
İ	İ
	Low pH, wind erosion, low available water capacity.
İ	
	Low pH, wind erosion, low available water capacity.
İ	İ
low pH, wind erosion, low	Equipment limitation (slope), low pH, wind erosion, low available water capacity.
į	
(dense till), low pH, crusting, moderate available water capacity, restricted	limited rooting depth (dense
permeability.	
(dense till), low pH, crusting, water erosion, moderate available water capacity, restricted	Trafficability limitation, limited rooting depth (dense till), low pH, water erosion.
	capacity.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards 	 Pastureland limitations and hazards
CwkA: Crumstown		Low pH, wind erosion, low available water capacity.
CwkB: Crumstown		 Low pH, wind erosion, low available water capacity.
DcrA: Del Rey		 Trafficability limitation, low pH.
EchAN: Edwards	erosion, subsidence,	Ponding, wetness, trafficability limitation, wind erosion, subsidence.
EchAU: Edwards	 Ponding, wetness, low pH, wind erosion, subsidence, restricted permeability.	 Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
EcrAN: Edselton	erosion, subsidence,	 Ponding, wetness, trafficability limitation, wind erosion, subsidence.
EcrAU: Edselton		Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
EmeA: Elston	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
GczA: Gilford	 Ponding, wetness, low pH, wind erosion, moderate available water capacity.	
GdnA: Gilford	 Ponding, wetness, low pH, wind erosion, moderate available water capacity.	
HfbAN: Henrietta	-	Ponding, wetness, trafficability limitation, wind erosion, subsidence.
HfbAU: Henrietta	 Ponding, wetness, low pH, wind erosion, subsidence. 	 Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
HkkA: Hillsdale	 Low pH, wind erosion, moderate available water capacity. 	 Low pH, wind erosion.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	Pastureland limitations and hazards
	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
HknC2: Hillsdale	Low pH, water erosion, wind erosion, moderate available water capacity.	_
	Low pH, water erosion, wind erosion, moderate available water capacity.	_
	 Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
Oshtemo	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
HkpC2: Hillsdale	Low pH, water erosion, wind erosion, moderate available water capacity.	_
	Low pH, water erosion, wind erosion, moderate available water capacity.	_
HkpD2: Hillsdale	 	low pH, water erosion, wind
Tracy	 Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
	erosion, subsidence.	Ponding, wetness, trafficability limitation, wind erosion, subsidence.
	İ	Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
JaaAK: Jamestown		Flooding, trafficability limitation.
MfaA: Martinsville	Low pH, crusting.	Low pH.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards 	 Pastureland limitations and hazards
MfaB2: Martinsville	Low pH, crusting, water erosion, moderate available water capacity.	 Low pH, water erosion.
MfaC2: Martinsville	 Low pH, crusting, water erosion, moderate available water capacity.	 Low pH, water erosion.
MfrAN: Madaus	erosion, subsidence, low	Ponding, wetness, trafficability limitation, wind erosion, low available water capacity, subsidence.
MfrAU: Madaus	available water capacity,	Ponding, wetness, trafficability limitation, low pH, wind erosion, low available water capacity, subsidence.
MgcA: Maumee	 Ponding, low ph, high pH, wind erosion, low available water capacity.	
MgdAN: Martisco	erosion, subsidence, low available water capacity,	Ponding, wetness, trafficability limitation, wind erosion, low available water capacity, subsidence.
MhaA: Maumee		 Ponding, wetness, low pH, high pH, wind erosion, low available water capacity.
MhbA: Maumee		 Ponding, wetness, low pH, high pH, wind erosion, low available water capacity.
MmbC2: Miami		Limited rooting depth (dense till), low pH, water erosion.
MmdC3: Miami	till), low pH, crusting,	 Limited rooting depth (dense till), low pH, water erosion, low available water capacity.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 	 Pastureland limitations and hazards
MmdD3: Miami	till), low pH, crusting,	 Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion, low available water capacity.
MouA: Milford	 Ponding, wetness, low pH, clodding. 	 Ponding, wetness, trafficability limitation, low pH.
MsaA: Mishawaka		 Low pH, wind erosion, low available water capacity.
MtsB2: Morley		 Limited rooting depth (dense till), low pH, water erosion, low available water capacity.
MtsC2: Morley		 Limited rooting depth (dense till), low pH, water erosion, low available water capacity.
MubD3: Morley	till), low pH, clodding,	 Equipment limitation (slope), limited rooting depth (dense till), low pH, water erosion, low available water capacity.
MvhAN: Moston	 Ponding, wetness, wind erosion, subsidence, restricted permeability.	 Ponding, wetness, trafficability limitation, wind erosion, subsidence.
MvhAU: Moston		 Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
MvkA: Morocco	 	· -
MwzAN: Muskego	erosion, subsidence,	 Ponding, wetness, trafficability limitation, wind erosion, subsidence.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name		
and map symbol	Cropland limitations and hazards 	Pastureland limitations and hazards
MwzAU: Muskego	Ponding, wetness, low pH, wind erosion, subsidence, restricted permeability.	 Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
OkrA: Oshtemo	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
OkrB: Oshtemo	 - Low pH, wind erosion, moderate available water capacity.	 Low pH, wind erosion.
OkrC2: Oshtemo	Low pH, water erosion, wind erosion, moderate available water capacity.	Low pH, water erosion, wind erosion.
OkrD: Oshtemo		low pH, water erosion, wind
OlcA: Oshtemo	 - Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
OlcB: Oshtemo	 - Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
OlcC2: Oshtemo	- Low pH, water erosion, wind erosion, moderate available water capacity.	
OlcD: Oshtemo	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	
OmgA: Osolo	• –	 Low pH, wind erosion, low available water capacity.
PaaAN: Palms	 - Ponding, wetness, low pH, wind erosion, subsidence.	 Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
PaaAU: Palms	 - Ponding, wetness, low pH, wind erosion, subsidence. 	Ponding, wetness, trafficability limitation, low pH, wind erosion, subsidence.
Pmg: Pits, gravel	 - Not rated. 	 Not rated.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
Px1A: Psammaquents		Trafficability limitation, very low available water capacity.
Pxo: Psamments	Restricted permeability.	 Very low available water capacity.
	-	
	-	 Wetness, trafficability limitation, low pH.
RenA: Rensselaer		 Ponding, wetness, trafficability limitation.
ReyA: Rensselaer		 Ponding, wetness, trafficability limitation.
RopA: Riddles	 - Low pH, wind erosion. 	Low pH, wind erosion.
Oshtemo	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
	Low pH, water erosion, wind erosion.	Low pH, water erosion, wind erosion.
	 Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
RopC2: Riddles	Low pH, water erosion, wind erosion.	 Low pH, water erosion, wind erosion.
Oshtemo	Low pH, water erosion, wind erosion, moderate available water capacity.	
RopD2: Riddles	 Equipment limitation (slope), low pH, water erosion, wind erosion.	. – –
	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
RoqB:	 	
Riddles	Low pH, water erosion.	Low pH, water erosion.
Metea	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
RoqC2:	 Low pH, water erosion.	Low pH, water erosion.
Metea	Low pH, water erosion, wind erosion, moderate available water capacity.	Low pH, water erosion, wind erosion.
RoqD2:	 	
	 Equipment limitation (slope), low pH, water erosion.	Equipment limitation (slope),
Metea	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
SdzA:		
-	Wetness, low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
Crosier	Wetness, limited rooting depth (dense till), low pH, crusting, moderate available water capacity, restricted permeability.	limited rooting depth (dense
SdzaB: Selfridge	 	 Low pH, wind erosion.
Brems	_	Low pH, wind erosion, low available water capacity.
SesA: Schoolcraft	 Low pH, crusting, moderate available water capacity.	Low pH.
SnlA: Southwest	 Ponding, wetness, crusting. 	Ponding, wetness, trafficability limitation.
TmpA: Tracy	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
	 - Low pH, wind erosion, moderate available water capacity. 	Low pH, wind erosion.
	Low pH, water erosion, wind erosion, moderate available water capacity.	
	 Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

]
Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
TnwA:	Low pH.	Low pH.
TxuA:		Low pH, wind erosion, low available water capacity.
-		Low pH, wind erosion, low available water capacity.
-	<u> </u>	Low pH, wind erosion, low available water capacity.
TxuD: Tyner	 Equipment limitation (slope), low pH, water erosion, wind erosion, low available water capacity.	low pH, water erosion, wind
TxuF: Tyner	 Equipment limitation (slope), low pH, water erosion, wind erosion, low available water capacity.	low pH, water erosion, wind
Uam: Udorthents, loamy	 Not rated. 	 Not rated.
UdeA: Urban land	Built-up land.	Built-up land.
Bainter	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UdeB: Urban land	Built-up land.	Built-up land.
Bainter	 Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UdeC: Urban land	 Built-up land.	 Built-up land.
Bainter	Low pH, water erosion, wind erosion, moderate available water capacity.	Low pH, water erosion, wind erosion.
UdkA: Urban land	 Built-up land.	 Built-up land.
Brady	 Wetness, low pH, wind erosion, moderate available water capacity.	 Trafficability limitation, low pH, wind erosion.
UdzA: Urban land	 - Built-up land.	 Built-up land.
Auten		Trafficability limitation, limited rooting depth (sand and gravel), low pH.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
UeaA: Urban land	 Built-up land.	 Built-up land.
Crosier		limited rooting depth (dense
UeqA: Urban land	 - Built-up land.	 - Built-up land.
	 Ponding, wetness, low pH, wind erosion, moderate available water capacity.	
UewA: Urban land	 	 Built-up land.
	<u> </u>	
	_	Low pH, wind erosion, low available water capacity.
	Wetness, low pH, wind erosion, low available water capacity.	. –
UfbA:	 	
Urban land	Built-up land. 	Built-up land.
Brookston		Ponding, wetness, trafficability limitation.
UfhA:	 	
Urban land	Built-up land. 	Built-up land.
	_	Low pH, wind erosion, low available water capacity.
UfhB:	 	
Urban land	Built-up land. 	Built-up land.
Coloma	_	Low pH, wind erosion, low available water capacity.
UfhC:	 	
Urban land	Built-up land. 	Built-up land.
Coloma	_	Low pH, wind erosion, low available water capacity.
UfmA:	 	
Urban land	Built-up land. 	Built-up land.
	Limited rooting depth (sand and gravel), low pH, moderate available water capacity.	Limited rooting depth (sand and gravel), low pH.
UfrA:	 	
Urban land	Bullt-up land.	Built-up land.
Del Rey		Trafficability limitation, low pH.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
UftA: Urban land	 Built-up land.	Built-up land.
Elston	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UfzA: Urban land	 - Built-up land.	 Built-up land.
Mishawaka		 Low pH, wind erosion, low available water capacity.
UgaA: Urban land	 Built-up land. 	 Built-up land.
Morocco	Wetness, low pH, wind erosion, low available water capacity.	_
UglA: Urban land	 Built-up land.	 Built-up land.
	. –	Low pH, wind erosion, low available water capacity.
UgrA: Urban land	 - Built-up land.	 - Built-up land.
Rensselaer	 Ponding, wetness. 	 Ponding, wetness, trafficability limitation.
UgsA: Urban land	 Built-up land. 	 Built-up land.
Riddles	Low pH, wind erosion.	Low pH, wind erosion.
	 Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UgsB: Urban land	 Built-up land. 	 Built-up land.
Riddles	Low pH, water erosion, wind erosion.	Low pH, water erosion, wind erosion.
Oshtemo	 Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UgvA: Urban land	 Built-up land.	 Built-up land.
Tyner		 Low pH, wind erosion, low available water capacity.
UgvB: Urban land	 Built-up land.	 Built-up land.
Tyner	. –	Low pH, wind erosion, low available water capacity.
	•	•

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
UgvC: Urban land	Built-up land.	Built-up land.
Tyner	_	Low pH, wind erosion, low available water capacity.
UgvD: Urban land	 Built-up land.	 Built-up land.
Tyner	Equipment limitation (slope), low pH, water erosion, wind erosion, low available water capacity.	low pH, water erosion, wind
UhmA: Urban land	 Built-up land.	Built-up land.
	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UhmB: Urban land	 Built-up land. 	 Built-up land.
Hillsdale	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UhoC: Urban land	 Built-up land. 	 Built-up land.
Hillsdale	_	Low pH, water erosion, wind erosion.
Oshtemo	. –	Low pH, water erosion, wind erosion.
UhoD: Urban land	 Built-up land.	 Built-up land.
Hillsdale	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	
Oshtemo		. – –
UhpC: Urban land	 Built-up land.	 Built-up land.
Hillsdale		Low pH, water erosion, wind erosion.
	. –	Low pH, water erosion, wind erosion.
UhpD: Urban land	 Built-up land. 	 Built-up land.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 	 Pastureland limitations and hazards
UhpD: Hillsdale	 Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
Tracy	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
UhwA: Urban land	 - Built-up land.	 Built-up land.
Martinsville	Low pH, crusting.	Low pH.
UhwB: Urban land	Built-up land.	Built-up land.
Martinsville	Low pH, crusting, water erosion, moderate available water capacity.	Low pH, water erosion.
UhwC: Urban land	 Built-up land.	 Built-up land.
Martinsville	Low pH, crusting, water erosion, moderate available water capacity.	Low pH, water erosion.
UkaA: Urban land	 Built-up land.	 Built-up land.
Maumee	 Ponding, low pH, high pH, wind erosion, low available water capacity.	
UkeA: Urban land	 Built-up land.	 Built-up land.
Milford	 Ponding, wetness, low pH, clodding. 	 Ponding, wetness, trafficability limitation, low pH.
UkxA: Urban land	 Built-up land.	 Built-up land.
Oshtemo	 Low pH, wind erosion, moderate available water capacity.	 Low pH, wind erosion.
UkxB: Urban land	 - Built-up land.	 - Built-up land.
Oshtemo	 Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UkxC: Urban land	 Built-up land.	 - Built-up land.
Oshtemo	 Low pH, water erosion, wind erosion, moderate available water capacity. 	 Low pH, water erosion, wind erosion.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
UmfB: Urban land	 Built-up land. 	 Built-up land.
Riddles	Low pH, water erosion.	Low pH, water erosion.
Metea	 Low pH, wind erosion, moderate available water capacity. 	Low pH, wind erosion.
UmfC: Urban land	 Built-up land.	 Built-up land.
Riddles	 Low pH, water erosion.	Low pH, water erosion.
Metea	Low pH, water erosion, wind erosion, moderate available water capacity.	-
UmfD:	 	
Urban land	Built-up land.	Built-up land.
Riddles	Equipment limitation (slope), low pH, water erosion.	Equipment limitation (slope), low pH, water erosion.
Metea	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
UmpA:	 	
Urban land	Built-up land.	Built-up land.
Schoolcraft	Low pH, crusting, moderate available water capacity.	Low pH.
UmuA:		
Urban land	Built-up land.	Built-up land.
Southwest	Ponding, wetness, crusting.	Ponding, wetness,
UmwA:		
Urban land	Built-up land. 	Built-up land.
Tracy	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UmwB:	! 	
Urban land	Built-up land.	Built-up land.
Tracy	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.
UmwC: Urban land	 Built-up land.	 Built-up land.
Tracy	Low pH, water erosion, wind erosion, moderate available water capacity.	 Low pH, water erosion, wind erosion.
	•	•

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards 	Pastureland limitations and hazards
UmwD: Urban land	 Built-up land.	 Built-up land.
Tracy	Equipment limitation (slope), low pH, water erosion, wind erosion, moderate available water capacity.	low pH, water erosion, wind
UmxA: Urban land	 - Built-up land.	 - Built-up land.
Troxel	Low pH.	 Low pH.
UnoA: Urban land	 - Built-up land.	 Built-up land.
Whitaker	Wetness, low ph, crusting.	Trafficability limitation, log ph.
UnqB: Urban land	 Built-up land.	 Built-up land.
Williamstown	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability.	 Limited rooting depth (dense till), low pH, water erosion
Crosier	-	 Trafficability limitation, limited rooting depth (dense till), low pH, water erosion
UntA: Urban land	 Built-up land.	 Built-up land.
Wunabuna	 Ponding, wetness, high pH. 	 Ponding, wetness, trafficability limitation, high pH.
Usl: Udorthents, rubbish	 Not rated.	 Not rated.
W: Water	 Water.	 Water.
WcnAI: Waterford	 - Flooding, wetness, high pH, crusting, low available water capacity.	 - Flooding, trafficability limitation, high pH, low available water capacity.
WoaA: Williamstown		 Limited rooting depth (dense till), low pH.

Table 5.--Main Cropland and Pastureland Limitations and Hazards--Continued

Soil name and map symbol	 Cropland limitations and hazards	 Pastureland limitations and hazards
WoaB2: Williamstown		 Limited rooting depth (dense till), low pH, water erosion.
WoaC2: Williamstown	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability.	 Limited rooting depth (dense till), low pH, water erosion.
	Limited rooting depth (dense till), low pH, crusting, water erosion, moderate available water capacity, restricted permeability.	 Limited rooting depth (dense till), low pH, water erosion.
Crosier	-	 Trafficability limitation, limited rooting depth (dense till), low pH, water erosion.
WrxAN: Wunabuna	 Ponding, wetness, high pH. 	 Ponding, wetness, trafficability limitation, high pH.
WtbA: Whitaker	 Wetness, low pH, crusting. 	 - Trafficability limitation, low pH.
WujB: Williamstown		 Limited rooting depth (dense till), low pH, water erosion.
Moon	Low pH, wind erosion, moderate available water capacity.	Low pH, wind erosion.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land Land capability	Corn	 Soybeans	 Winter wheat 	 Grass-legume hay	 Pasture
		Bu	Bu	Bu	Tons	AUM*
AahAK: Abscota	4s 4	68	 24 	 24 	 2.3 	 4.5
AatAN: Ackerman, drained	4w	93	33	 37 	 3.1 	 6.1
AbhAN: Adrian, drained	3w	114	40	 46 	 3.9 	 7.8
AbhAU: Adrian, undrained	5w 5w			 	 	
ApuAN: Antung, drained	3w 	103	37	46 	4.3 4.3	7.7
AxvA: Auten	2s 2s	103	 36 	 49 	3.4 	6.8
BaaA: Bainter	3s 	89	32	36	 2.9 	5.9
BaaB: Bainter	3e 	89	32	36	 2.9 	5.9
BaaC2: Bainter	3e 	77	 27 	31	 2.5 	 4.9
BbmA: Baugo	2w	128	 45 	 52 	 4.3 	 8.4
BmgA: Blount	2w	106	37	 48 	 3.6 	 7.1
BshA: Brady	2w	99	 35 	40	 3.4 	 6.4
BsxA: Brems, Morocco	4s 4s	67	24 	30	 2.2 	4.3
BteA: Brems	4s 4s	61	22	28	 2.1 	4.1
BuuA: Brookston	2w	142	50	63	4.7 	9.4
CmbAI: Cohoctah	4w 	19	 7 	 7 	 0.6 	1.2
CnbA: Coloma	4s 4s	51	 18 	24	 1.7 	3.5
CnbB: Coloma	4s 4s	47	 17 	 21 	 1.6 	 3.1
CnbC: Coloma	6s 6	40	 14 	 18 	 1.3 	 2.7

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	 Land capability	Corn	 Soybeans 	 Winter wheat 	 Grass-legume hay	Pasture
		Bu	Bu	Bu	Tons	AUM*
CnbD: Coloma	6s 6s	30	 11 	 14 	0.9 0.9	2.0
CrrA: Coupee	2s	88	 31 	 36 	 2.9 	5.8
CvdA: Crosier	2w 	120	42 	54 	3.9 	8.0
CvdB: Crosier	2e 	121	42 	54 	3.9 	8.1
CwkA: Crumstown	3s 3s	94	33 	42 	3.1 	6.1
CwkB: Crumstown	3e 3e	94	33 	42	3.1	6.1
DcrA: Del Rey	2w 2	109	 38 	48	3.6	7.3
EchAN: Edwards, drained	4w 4	110	 39 	44 	3.6	7.3
EchAU: Edwards, undrained	5w 5w		 		 	
EcrAN: Edselton, drained	4w 4	111	 40 	 45 	 4.6 	8.1
EcrAU: Edselton, undrained	5w 5w		 		 	
EmeA: Elston	2s 2s	100	 36 	 41 	 4.2 	7.5
GczA: Gilford	2w 2	121	 42 	 50 	 4.0 	8.1
GdnA: Gilford	2w 2w	122	 43 	 50 	 4.1 	8.2
HfbAN: Henrietta, drained	2w 2w	142	 50 	 57 	 4.7 	9.4
HfbAU: Henrietta, undrained	5w 5w		 		 	
HkkA: Hillsdale	2e 2	84	 30 	 37 	 2.8 	5.6
HkkB: Hillsdale	2s 2s	84	 30 	 37 	 2.8 	5.6
HknC2: Hillsdale, Oshtemo	3e 3e	77	 27 	 31 	 2.5 	5.1
HknD2: Hillsdale, Oshtemo	4e 4e	62	 22 	 25 	 2.0 	4.2
HkpC2: Hillsdale, Tracy	3e 3e 	79	 28 	 32 	2.5 2.5	5.2
	1 1		I	I	1	

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	 Soybeans	 Winter wheat 	 Grass-legume hay	Pasture
		Bu	Bu	Bu	Tons	AUM*
HkpD2: Hillsdale, Tracy	4e 4	64	23	26 	2.1 2.1	4.3
HtbAN: Houghton, drained	3w 	127	45 	51	4.2 	8.4
HtbAU: Houghton, undrained	5w 5w				 	
JaaAK: Jamestown	2w 	118	42	52	4.8 	8.8
MfaA: Martinsville	1 1	113	39	46	3.7 3.7	7.5
MfaB2: Martinsville	2e 	109	38	45 	3.6 3.6	7.2
MfaC2: Martinsville	3e 3e	102	36	41	3.3	6.8
MfrAN: Madaus, drained	4w 	94	33	38	3.2	6.2
MfrAU: Madaus, undrained	5w 5				 	
MgcA: Maumee	3w 	110	40	50	 4.6 	8.2
MgdAN: Martisco, drained	4w 4	93	33	37	 3.1 	6.2
MhaA: Maumee	3w 	99	35	44	 3.2 	6.5
MhbA: Maumee	3w 3	101	35	45	 3.4 	6.6
MmbC2: Miami	3e 	94	33	42	 3.1 	6.1
MmdC3: Miami	4e 4	90	32	41	 3.0 	5.9
MmdD3: Miami	6e 6	75	26	34	 2.5 	5.0
MouA: Milford	2w 2 w	135	 47 	60	4.4 4.1	9.1
MsaA: Mishawaka	3s 3	72	26	32	 2.4 	4.7
MtsB2: Morley	2e	95	33	43	 3.0 	6.2
MtsC2: Morley	3e 3e	87	31	39	 2.8 	5.7
MubD3: Morley		66	23	30	 2.2 	4.4

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

		1	1	1 1	
Land Capability	Corn	 Soybeans 	 Winter wheat 	 Grass-legume hay	Pasture
] [Bu	Bu	Bu	Tons	AUM*
4w 4	108	38	 43 	 3.6 	7.2
5w 5w		 	 	 	
3s 3	76	28 	35	3.5 	5.9
4w 	113	40	45 	3.7 3.7	7.4
6w 		 		 	
3s 3	85	31	35	3.7 3.7	6.5
3s 	84	30	34	2.7 2.7	5.5
3e 	75	 26 	30	2.5 2.5	5.0
4e 4	60	 21 	24	2.0 2.0	4.0
3s 3	84	30	 34 	2.7 2.7	5.5
3s 3	80	 28 	 32 	2.6 2.6	5.4
3e 3e	70	 24 	 28 	2.4 2.4	4.7
4e 4e	55	 19 	 22 	1.8 1.8	3.7
3s 3	72	 25 	 33 	2.4 2.4	4.8
3w 3	128	 45 	 51 	4.2 4.2	8.5
3w 3		 	 	 	
8		 	 	 	
8		 	 	 	
2w 2	109	 39 	 45 	 3.6 	7.2
2w 2 w	104	 37 	 42 	3.3 3.1	6.9
	Aw Sw Sw	Bu 108	Sapability Bu	Bu Bu Bu Bu Bu Bu Aw 108 38 43 43 5w 5w 5w 5w 5w 5w 5w 5	Capability Bu

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land	Corn	 Soybeans	 Winter wheat	 Grass-legume hay	Pasture
		Bu	Bu	Bu	Tons	AUM*
RenA: Rensselaer	2w	147	 52 	 59 	4.8 4.8	9.8
ReyA: Rensselaer	2w 	146	 51 	 59 	4.9 	9.7
RopA: Riddles, Oshtemo	1	94	33 	41	3.2 3.2	6.2
RopB: Riddles, Oshtemo	2e	94	33 	41	3.2 	6.2
RopC2: Riddles, Oshtemo	3e	89	 31 	39	3.1 	5.9
RopD2: Riddles, Oshtemo	4e	81	28	35	2.7 	5.5
RoqB: Riddles, Metea	3e	84	30	38	2.7 	5.6
RoqC2: Riddles, Metea	3e	83	 29 	38	2.7 	5.4
RoqD2: Riddles, Metea	4e 	65	 23 	29	2.0	4.4
SdzA: Selfridge, Crosier	3w	103	 36 	46	 3.4 	6.8
SdzaB: Selfridge, Brems	3e	80	 28 	36	 2.6 	5.3
SesA: Schoolcraft	2s 2	115	 40 	47	 3.9 	7.6
SnlA: Southwest	2w	136	 47 	55	 4.5 	9.2
TmpA: Tracy	2s 2	90	 32 	36	 3.0 	5.9
TmpB: Tracy	2e 	91	 32 	36	 3.0 	6.1
TmpC2: Tracy	3e	79	 28 	32	 2.6 	5.1
TmpD: Tracy	4e 4	61	 21 	24	 2.1 	4.1
TnwA: Troxel	1 1	123	 43 	49	 3.9 	8.2
TxuA: Tyner	3s 	51	 18 	24	 1.7 	3.4
TxuB: Tyner	3s 3	51	 18 	23	 1.7 	3.3
TxuC: Tyner	3e 	42	 15 	 19 	 1.4 	2.6

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	 Land capability	Corn	 Soybeans	 Winter wheat 	 Grass-legume hay	Pasture
	<u> </u>	Bu	Bu	Bu	Tons	AUM*
TxuD: Tyner	4e	20	 7 	 9 		1.2
TxuF: Tyner	6e 6		 	 	 	
Uam: Udorthents, loamy	8 8 		 	 	 	
UdeA. Urban land, Bainter	 		 	 	 	
UdeB. Urban land, Bainter	 		 	 	 	
UdeC. Urban land, Bainter			 	 	 	
UdkA. Urban land, Brady			 	 	 	
UdzA. Urban land, Auten			 	 	 	
UeaA. Urban land, Crosier			 		 	
UeqA. Urban land, Gilford			 		 	
UewA. Urban land, Brems, Morocco			 	 		
UfbA. Urban land, Brookston			 	 	 	
UfhA. Urban land, Coloma			 	 		
UfhB. Urban land, Coloma			 	 		
UfhC. Urban land, Coloma			 			
UfmA. Urban land, Coupee			 			
UfrA. Urban land, Del Rey			 			
UftA. Urban land, Elston			 			
UfzA. Urban land, Mishawaka			 	 		
UgaA. Urban land, Morocco			 	 		

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

capability	Corn	Soybeans	Winter wheat 	hay	Pastur
	Bu	Bu	Bu	Tons	AUM*
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Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol	Land	Corn	Soybeans	 Winter wheat		Pasture
and soil name	capability		<u> </u>	1	hay	
		Bu	Bu	Bu	Tons	AUM*
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Urban land, Maumee	i		İ	i	İ	
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UkeA.	Į.			1		
Urban land, Milford						
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Urban land, Oshtemo	i				 	
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UkxB.	1			1		
Urban land, Oshtemo	!					
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Urban land, Riddles,	1			1		
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UmfC.			I I	I	 	
Urban land, Riddles,						
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UmfD.	Į.			1		
Urban land, Riddles,						
Metea	ļ					
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Urban land,	i		İ	i	İ	
Schoolcraft	į		İ	İ	j i	
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UmwB.	ļ					
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UmwC.	i			i	İ	
Urban land, Tracy	ĺ			İ	İ	
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Urban land, Tracy	 		1		 	
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Urban land, Troxel	i		i	i	i i	
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UnoA.	!					
Urban land, Whitaker						
UnqB.			1			
Urban land,				İ		
Williamstown,	i		i	i	į i	
Crosier	į				ı İ	
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Urban land, drained, Wunabuna, drained			1	I	 	
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Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol	Land	Corn	Soybeans	Winter wheat	Grass-legume	Pasture
and soil name	capability				hay	
		Bu	Bu	Bu	Tons	AUM*
Jsl.	 					
Udorthents, rubbish	į į		į	į	į	
٧.	 				 	
Water						
WcnAI:	5w	60	21	21	2.0	4.0
Waterford						
WoaA:	1 1	109	38	50	3.6	7.1
Williamstown						
WoaB2:	2e	109	38	50	3.6	7.1
Williamstown						
WoaC2:	3e	101	35	46	3.3	6.7
Williamstown						
WobB:	2e	111	39	50	3.6	7.3
Williamstown, Crosier						
0100101					i i	
VrxAN: Wunabuna, drained	2w	133	46	53	4.3	8.9
					i i	
VtbA: Whitaker	2w	128	45	52	4.2	8.5
······································						
WujB: Williamstown, Moon	2e	98	34	45	3.2	6.4

 $[\]star$ Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 7.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AxvA	 Auten loam, 0 to 1 percent slopes (where drained)
BaaA	Bainter sandy loam, 0 to 1 percent slopes
BaaB	Bainter sandy loam, 1 to 4 percent slopes
BbmA	Baugo silt loam, 0 to 1 percent slopes (where drained)
BmgA	Blount silt loam, 0 to 2 percent slopes (where drained)
BshA	Brady sandy loam, 0 to 1 percent slopes (where drained)
BuuA	Brookston loam, 0 to 1 percent slopes (where drained)
CmbAI	Cohoctah loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and
	either protected from flooding or not frequently flooded during the growing season)
CrrA	Coupee silt loam, 0 to 1 percent slopes
CvdA	Crosier loam, 0 to 1 percent slopes (where drained)
CvdB	Crosier loam, 1 to 4 percent slopes (where drained)
CwkA	Crumstown fine sandy loam, 0 to 1 percent slopes
CwkB	Crumstown fine sandy loam, 1 to 5 percent slopes
DcrA	Del Rey silty clay loam, 0 to 1 percent slopes
EmeA	Elston sandy loam, 0 to 1 percent slopes
GczA	Gilford sandy loam, 0 to 1 percent slopes (where drained)
GdnA	Gilford mucky sandy loam, 0 to 1 percent slopes (where drained)
HkkA	Hillsdale sandy loam, 0 to 1 percent slopes
HkkB	Hillsdale sandy loam, 1 to 5 percent slopes
JaaAK	Jamestown silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration (where drained
MfaA	Martinsville loam, 0 to 1 percent slopes
MfaB2	Martinsville loam, 1 to 5 percent slopes, eroded
MouA	Milford silty clay loam, 0 to 1 percent slopes (where drained)
MsaA	Mishawaka sandy loam, 0 to 1 percent slopes
MtsB2	Morley silt loam, 2 to 6 percent slopes, eroded
OkrA	Oshtemo fine sandy loam, 0 to 1 percent slopes
OkrB	Oshtemo fine sandy loam, 1 to 5 percent slopes
OlcA	Oshtemo sandy loam, 0 to 1 percent slopes
OlcB	Oshtemo sandy loam, 1 to 5 percent slopes
QuiA	Quinn loam, 0 to 1 percent slopes (where drained)
QujA	Quinn sandy loam, 0 to 1 percent slopes (where drained)
RenA	Rensselaer mucky loam, 0 to 1 percent slopes (where drained)
ReyA	Rensselaer loam, 0 to 1 percent slopes (where drained)
RopA	Riddles-Oshtemo fine sandy loams, 0 to 1 percent slopes
RopB	Riddles-Oshtemo fine sandy loams, 1 to 5 percent slopes
SdzA	Selfridge-Crosier complex, 0 to 1 percent slopes
SesA	Schoolcraft loam, 0 to 1 percent slopes
SnlA	Southwest silt loam, 0 to 1 percent slopes (where drained)
TmpA	Tracy sandy loam, 0 to 1 percent slopes
TmpB	Tracy sandy loam, 1 to 5 percent slopes
TnwA	Troxel silt loam, 0 to 1 percent slopes
WoaA	Williamstown loam, 0 to 1 percent slopes (where drained)
WoaB2	Williamstown loam, 1 to 5 percent slopes, eroded (where drained)
WobB WtbA	Williamstown-Crosier loams, 1 to 5 percent slopes (where drained)
WtbA WujB	Whitaker loam, 0 to 1 percent slopes (where drained) Williamstown-Moon complex, 1 to 5 percent slopes (where drained)

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol				height, in feet, of	
and soil name	<8 	8-15	16-25 	26-35 	>35
AahAK: Abscota	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	 Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolin; poplar.
	 	sumac.	 	 	
AatAN: Ackerman, drained-	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
Abhan: Adrian, drained	 American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	 Downy hawthorn, northern white- cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak.	 Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
AbhAU: Adrian, undrained.	 	 - 	 - 	 	
ApuAN: Antung, drained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
AxvA: Auten	 American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazel alder,		Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	 Eastern cottonwood, imperial Carolin: poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35		
BaaA: Bainter	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.			
BaaB: Bainter	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin: poplar, red maple, river birch, silver maple, tuliptree		
BaaC2: Bainter	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree		
BbmA: Baugo	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.		
BmgA: Blount	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.		Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15 	16-25 	26-35	>35 		
BshA:							
Brady	American elder,	Arrowwood,	Common persimmon,	Blackgum, bur oak,	Eastern		
	black chokeberry,	blackhaw,	eastern redcedar,	eastern white	cottonwood,		
	highbush	cockspur	hackberry,	pine, green ash,	imperial Carolina		
	cranberry,	hawthorn, hazel	northern white-	Norway spruce,	poplar, red		
	ninebark,	alder,	cedar, shingle	pin oak,	maple, river		
	redosier dogwood,	nannyberry,	oak, tamarack,	Shumard's oak,	birch, silver		
	silky dogwood,	pawpaw, prairie	Washington	swamp white oak,	maple.		
	spicebush.	crabapple, roughleaf dogwood,	hawthorn. 	white ash. 	 		
		witchhazel.	 -	 -	 -		
BsxA:		 	 	 	 		
Brems	American elder,	Arrowwood,	American plum,	Blackgum, bur oak,	Eastern		
	common juniper,	blackhaw, prairie	eastern redcedar,	eastern white	cottonwood,		
	coralberry,	crabapple,	hackberry,	pine, green ash,	imperial Carolina		
	highbush	roughleaf	serviceberry,	red maple, red	poplar.		
	cranberry, silky	dogwood, shining	Washington	pine, river			
	dogwood.	sumac, smooth	hawthorn.	birch, silver			
		sumac, staghorn		maple.			
		sumac.	 	 	 		
Morocco	American elder,	Arrowwood,	Common persimmon,	Blackgum, bur oak,	'		
	black chokeberry,	blackhaw,	eastern redcedar,	chinkapin oak,	cottonwood,		
	highbush	cockspur	hackberry,	eastern white	imperial Carolina		
	cranberry,	hawthorn, hazel	northern white-	pine, green ash,	poplar, red		
	ninebark, silky	alder, pawpaw,	cedar, shingle	Norway spruce.	maple, river		
	dogwood,	prairie	oak, Washington	 	birch, silver		
	spicebush.	crabapple,	hawthorn.	 	maple.		
		roughleaf	 	l I	l I		
		dogwood, witchhazel.	 	 	 		
BteA:		 	 	 	 		
Brems	American elder,	Arrowwood,	American plum,	 Blackgum, bur oak,	 Eastern		
	common juniper,	blackhaw, prairie			cottonwood,		
	coralberry,	crabapple,	hackberry,	pine, green ash,	imperial Carolina		
	highbush	roughleaf	serviceberry,	red maple, red	poplar.		
	cranberry, silky	dogwood, shining	Washington	pine, river			
	dogwood.	sumac, smooth	hawthorn.	birch, silver	 		
		sumac, staghorn sumac.	 	maple. 	 		
BuuA:		[[[[[[
Brookston	American elder,	Cockspur hawthorn,	Green hawthorn,	Blackgum, bur oak,	Eastern		
	black chokeberry,	_	hackberry,	green ash, Norway	:		
	buttonbush, gray	nannyberry,	northern white-	spruce, pin oak,	imperial Carolina		
	dogwood, highbush		cedar, shingle	swamp white oak.	poplar, red		
	cranberry,	dogwood.	oak.	_	maple, river		
	ninebark,				birch, silver		
	redosier dogwood,				maple.		
	silky dogwood,		1	I	I		
		I	1	I	I		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35		
CmbAI: Cohoctah	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	 Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak.	 Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
CnbA: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 		
CnbB: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 		
CnbC: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 		
CnbD: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 		
CrrA: Coupee	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white- cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of					
and soil name	<8	8-15	16-25 	26-35	>35	
CvdA:	 	 	 	 	 	
Crosier	American elder,	Arrowwood,		Blackgum, bur oak,		
	black chokeberry, highbush	blackhaw, cockspur	eastern redcedar, hackberry,	eastern white pine, green ash,	cottonwood, imperial Carolin	
	cranberry,	hawthorn, hazel	northern white-	Norway spruce,	poplar, red	
	ninebark,	alder,	cedar, shingle	pin oak,	maple, river	
	redosier dogwood,	nannyberry,	oak, Washington	Shumard's oak,	birch, silver	
	silky dogwood,	pawpaw, prairie	hawthorn.	swamp white oak,	maple.	
	spicebush.	crabapple, roughleaf	 	white ash.	 	
		dogwood,	 	 	 	
	İ	witchhazel.			İ	
CvdB:	 	 	 	 	 	
Crosier	American elder,	Arrowwood,	Common persimmon,	Blackgum, bur oak,	Eastern	
	black chokeberry,		eastern redcedar,		cottonwood,	
	highbush cranberry,	cockspur havel	hackberry, northern white-	pine, green ash, Norway spruce,	imperial Carolir poplar, red	
	ninebark,	alder,	cedar, shingle	pin oak,	maple, river	
	redosier dogwood,	nannyberry,	oak, tamarack,	Shumard's oak,	birch, silver	
	silky dogwood,	pawpaw, prairie	Washington	swamp white oak,	maple.	
	spicebush.	crabapple,	hawthorn.	white ash.	1	
	 	roughleaf dogwood,	 	 	 	
		witchhazel.				
CwkA:	 	 	 	 	 	
Crumstown	American elder,	Arrowwood,	American plum,	Black walnut,	Eastern	
	common juniper,	blackhaw, hazel	eastern redcedar,		cottonwood,	
	coralberry, gray dogwood, highbush	alder, hazelnut, nannyberry,	hackberry, northern white-	oak, northern red oak, Norway	eastern white pine, green ash,	
	cranberry,	roughleaf	cedar, prairie	spruce, pin oak,	imperial Carolin	
	ninebark,	dogwood, shining	crabapple,	swamp white oak.	poplar, red	
	redosier dogwood,	sumac, smooth	serviceberry,	[maple, river	
	silky dogwood, spicebush.	sumac, staghorn sumac, wild sweet	Washington hawthorn.	 	birch, silver maple, tuliptree	
	spicebush.	crab, witchhazel.	nawchorn:	 	mapie, cullpulee 	
CwkB:	 	 	 	 	 	
Crumstown	American elder,	Arrowwood,	American plum,	Black walnut,	Eastern	
	common juniper,	blackhaw, hazel	eastern redcedar,		cottonwood,	
	coralberry, gray dogwood, highbush	alder, hazelnut, nannyberry,	hackberry, northern white-	oak, northern red oak, Norway	eastern white pine, green ash,	
	cranberry,	roughleaf	cedar, prairie	spruce, pin oak,	imperial Carolin	
	ninebark,	dogwood, shining	crabapple,	swamp white oak.	poplar, red	
	redosier dogwood,	'	serviceberry,		maple, river	
	silky dogwood, spicebush.	sumac, staghorn sumac, wild sweet	Washington hawthorn.	 	birch, silver maple, tuliptree	
		crab, witchhazel.			maple, callpeled	
DcrA:	 	[[
Del Rey	American elder,	Arrowwood,	Common persimmon,	Blackgum, bur oak,	Eastern	
	black chokeberry,		eastern redcedar,	'	cottonwood,	
	common winterberry,	cockspur havel	hackberry,	pine, green ash,	imperial Carolin	
	winterberry, highbush	nawthorn, nazel alder,	northern white- cedar, shingle	Norway spruce, pin oak,	poplar, red maple, river	
	blueberry,	nannyberry,	oak, tamarack,	Shumard's oak,	birch, silver	
	highbush	pawpaw, prairie	Washington	swamp white oak,	maple.	
	cranberry,	crabapple,	hawthorn.	white ash.		
	ninebark,	roughleaf	 	 	 	
	redosier dogwood, silky dogwood,	dogwood, witchhazel.	 	 	 	
	spicebush.					
	1		I	I	I	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	"	Trees having predicted 20-year average height, in feet, of					
and soil name	<8	8-15	16-25 	26-35	>35		
EchAN: Edwards, drained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	 Downy hawthorn, northern white- cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
EchAU: Edwards, undrained	 		 	 	 		
EcraN: Edselton, drained-	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	dogwood, hazel alder,	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
EcrAU: Edselton, undrained.	 		 	 	 		
EmeA: Elston	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.		
GczA: Gilford	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	'		
GdnA: Gilford	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	cottonwood, imperial Carolina		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	İ				
and soil name	<8	8-15	16-25 	26-35	>35
HfbAN: Henrietta, drained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak. 	cottonwood,
HfbAU: Henrietta, indrained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	 Downy hawthorn, northern white- cedar, tamarack. 	 Blackgum, bur oak, green ash, pin oak, swamp white oak.	cottonwood,
HkkA: Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur cak, northern red cak, Norway spruce, pin cak, swamp white cak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
HkkB: Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
HknC2: Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	i				
and soil name	<8 	8-15	16-25 	26-35 	>35
HknC2:	 		[[
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
HknD2:	İ		İ	İ	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
HkpC2:					
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	'	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut,	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol			1	1	1
and soil name	<8 	8-15	16-25	26-35	>35
HkpD2:	 		 	 	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood,	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver
	spicebush.	sumac, wild sweet crab, witchhazel.	hawthorn.		maple, tuliptree
	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
HtbAN: Houghton, drained-	 American elder.	Alternateleaf	Downy hawthorn,	 Blackgum, bur oak,	 Eastern
	black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	dogwood, hazel alder,	northern white-	green ash, pin oak, swamp white oak.	cottonwood, imperial Carolin. poplar, red maple, river birch, silver maple.
HtbAU: Houghton, undrained.	 		 	 	
JaaAK:					
Jamestown	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolin poplar, red maple, river birch, silver maple.
MfaA:	 amonigan =1-1	Arrowwood	Amonican -1	 Plack shower	Fagtorn
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood,	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet	American plum, common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington		Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25 	26-35 	>35 		
MfaB2:	 		 	 	 		
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	-	•	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.		
MfaC2:							
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	-		Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.		
Madaus, drained	American elder.	Alternateleaf	Downy hawthorn,	 Blackgum, bur oak,	 Eastern		
	black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	dogwood, hazel alder,	northern white- cedar, tamarack.	green ash, pin oak, swamp white oak.	cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
MfrAU:							
Madaus, undrained.	 		 	 	 		
MgcA: Maumee	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	 Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	•		
MgdAN: Martisco, drained-	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol		0.15	16.05	1 26.25	1 .25
and soil name	<8	8-15	16-25	26-35	>35
MhaA:			 	 	
Maumee	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	
MhbA:	İ		İ	İ	
Maumee	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak. 	
MmbC2:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazelnut, nannyberry, pawpaw, roughleaf	serviceberry, shingle oak, Washington hawthorn.	'	imperial Carolin
MmdC3:				 Plasheum asstann	
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder, hazelnut, nannyberry, prairie crabapple, roughleaf	American plum, black oak, eastern redcedar, hackberry, northern white- cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	cottonwood,
Miami	American elder,	Arrowwood,	American plum,	 Blackgum, eastern	 Eastern
	black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder, hazelnut, nannyberry, prairie crabapple, roughleaf	black oak, eastern redcedar, hackberry, northern white- cedar, serviceberry, Washington hawthorn, chinkapin oak.	white pine, green	cottonwood,

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35		
MouA: Milford	 American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	 Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	 Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	:		
MsaA: Mishawaka	 American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.		
Morley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder, hazelnut,	American plum, black oak, eastern redcedar, hackberry, northern white- cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	cottonwood,		
MtsC2: Morley	 American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, black oak, eastern redcedar, hackberry, northern white- cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	cottonwood,		
MubD3: Morley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder, hazelnut,	American plum, black oak, eastern redcedar, hackberry, northern white- cedar, serviceberry, Washington hawthorn, chinkapin oak.	Blackgum, eastern white pine, green ash, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white oak.	cottonwood,		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35		
MvhAN: Moston, drained	 American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak. 	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
MvhAU:	 	 	 	 	 		
Moston, undrained.		 	 		 		
MvkA: Morocco	 American elder, black chokeberry, highbush cranberry, ninebark, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	 Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce.	 Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
MwzAN: Muskego, drained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
MwzAU: Muskego, undrained	 	 	 	 	 		
OkrA: Oshtemo	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.		
OkrB: Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35 		
OkrC2:		Arrowwood,	American plum,	 Black walnut,	Eastern		
	common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	cottonwood, eastern white pine, green ash, imperial Caroline poplar, red maple, river birch, silver maple, tuliptree		
OkrD: Oshtemo	common juniper, coralberry, gray dogwood, highbush		 American plum, eastern redcedar, hackberry, northern white- cedar, prairie	oak, northern red	pine, green ash,		
	cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	crabapple, serviceberry, Washington	spruce, pin oak, swamp white oak. -	imperial Carolin: poplar, red maple, river birch, silver maple, tuliptree 		
OlcA: Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroline poplar, red maple, river birch, silver maple, tuliptree		
OlcB: Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	:	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree		
OlcC2: Oshtemo	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	:	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol		8-15	16.05	26-35	. 25
and soil name	< 8 	8-15	16-25	26-35	>35
OlcD: Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
OmgA: Osolo	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.
PaaAN: Palms, drained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
PaaAU: Palms, undrained	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	 Downy hawthorn, northern white- cedar, tamarack.	 Blackgum, bur oak, green ash, pin oak, swamp white oak. 	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Pmg: Pits, gravel. PxlA: Psammaquents. Pxo:	 			 	
Psamments. QuiA: Quinn	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	•

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	T:							
and soil name	<8	8-15	16-25 	26-35 	>35			
QujA:	 	 	 	 	 			
Quinn	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	'			
RenA: Rensselaer	American elder,	 Cockspur hawthorn,	Green hawthorn,	 Blackgum, bur oak,	 Eastern			
	black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazel alder,	hackberry, northern white- cedar, shingle oak.	green ash, Norway spruce, pin oak, swamp white oak.				
ReyA:			į	į				
Rensselaer	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.				
RopA:								
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth	· -	:	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree white ash.			
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	•	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree			

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Ti	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25 	26-35 	>35 			
RopB:				 	 			
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut,	American plum, common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.			
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.			
RopC2: Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth			Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.			
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.			
RopD2: Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut,	common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry,	•	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.			

Table 8.--Windbreaks and Environmental Plantings--Continued

Trees having predicted 20-year average height, in feet, of Map symbol					
and soil name	<8	8-15	16-25	26-35	>35
RopD2: Oshtemo	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
RoqB: Riddles Metea	black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel. Arrowwood, blackhaw, hazel alder, hazelnut,	common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry,	blackgum, northern red oak, Norway spruce, pin oak, red pine, white oak.	imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash. Eastern cottonwood,
RoqC2: Riddles	redosier dogwood, silky dogwood, spicebush. American elder,	sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel. Arrowwood,	 	 Black cherry,	maple, river birch, silver maple, tuliptree. Eastern
	black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth		'	cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
Metea	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	i			height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
RoqD2:	 		 	 	
Riddles	black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood,	dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet		Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, white oak.	imperial Caroli poplar, red maple, river birch, silver maple, tuliptre
	spicebush.	crab, witchhazel.	hawthorn.	 	white ash.
Metea	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash imperial Caroli poplar, red maple, river birch, silver maple, tuliptre
SdzA: Selfridge		Arrowwood,	Common persimmon,	 Blackgum, bur oak,	
	black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.		eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.		cottonwood, imperial Caroli poplar, red maple, river birch, silver maple.
Crosier	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroli poplar, red maple, river birch, silver maple.
SdzaB: Selfridge	black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood,	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, namyberry, pawpaw, prairie	eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington	pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak,	Eastern cottonwood, imperial Caroli poplar, red maple, river birch, silver maple.
	spicebush.	crabapple, roughleaf dogwood, witchhazel.	hawthorn.	white ash.	-

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	İ				
and soil name	<8	8-15	16-25	26-35	>35
SdzaB: Brems	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	 Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolin: poplar.
SesA: Schoolcraft	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree
SnlA: Southwest	 American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	 Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	:
TmpA: Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	'	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree
TmpB: Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut,		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin, poplar, red maple, river birch, silver maple, tuliptree

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	i	, , , , , , , , , , , , , , , , , , ,		height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
TmpC2:	 American elder,	Arrowwood,	American plum,	 Black walnut,	 Eastern
IIdoy	common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut,	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington		cottonwood,
TmpD:					
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
TnwA:					
Troxel	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut,	American plum, common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.		Eastern cottonwood, eastern white pine, green ash, imperial Carolin. poplar, red maple, river birch, silver maple, tuliptree white ash.
TxuA:					
Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Caroling poplar.
TxuB:	İ				
Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	_	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolin poplar.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	<u> </u>			height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
TxuC: Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Caroling poplar.
TxuD: Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar.
TxuF: Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar.
Uam: Udorthents, loamy. UdeA: Urban land.	 	 	 	 	
Bainter	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	•	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree
UdeB: Urban land. Bainter	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining	•	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Caroling poplar, red maple, river birch, silver maple, tuliptree

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8	8-15	16-25	26-35	>35		
UdeC: Urban land.	 	 	 	 	 -		
Bainter	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree		
UdkA: Urban land.	 			 			
Brady	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazel alder,	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.		
UdzA:	 -		 	 -	 		
Urban land. Auten UeaA:	 American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazel alder,		Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.		
Urban land.	 		 	 	 		
Crosier	 American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazel alder,	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	l			20-year average height, in feet, of-		
and soil name	<8	8-15	16-25	26-35	>35	
UeqA: Urban land.	 	 	 	 	 - -	
Gilford	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.		
UewA: Urban land.	 	 -	 	 	 -	
Brems	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolin poplar. 	
Morocco	American elder, black chokeberry, highbush cranberry, ninebark, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce.	Eastern cottonwood, imperial Carolin poplar, red maple, river birch, silver maple.	
UfbA: Urban land.	 	 	 	 	 	
Brookston	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	'	
UfhA: Urban land.	 		 	 		
Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	'	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolin poplar.	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	T:	rees naving predict	eu 20-year average	height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
UfhB: Urban land.	 	 	 - 	 - 	 -
Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.
UfhC: Urban land.	 		 	 	
Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.
UfmA: Urban land.	 	 	 	 	
Coupee	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white- cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
UfrA: Urban land.	 		 	 	
Del Rey	American elder, black chokeberry, common winterberry, highbush blueberry, highbush cranberry, ninebark, redosier dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	cottonwood, imperial Carolina poplar, red maple, river birch, silver
UftA: Urban land.	 	 	 	 	
Elston	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	:	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	 Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8 	8-15	16-25	26-35	>35		
UfzA: Urban land.	 	 		 	 		
Mishawaka	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.		
UgaA: Urban land.	 	 	 	 	 		
Morocco	American elder, black chokeberry, highbush cranberry, ninebark, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.		
UglA: Urban land.	 	 	 	 	 		
Osolo	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 		
UgrA: Urban land.	 	 	 	 	 		
Rensselaer	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	 Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white- cedar, shingle oak.	 Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	:		
UgsA: Urban land.	 	 	 - 	 	 		
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.		'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.		

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	İ	product		height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
UgsA: Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut,	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolin poplar, red maple, river birch, silver maple, tuliptree
UgsB: Urban land.	 		 	 	
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry,	common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry,	'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree white ash.
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree
UgvA: Urban land.	 		 	 	
Tyner	common juniper, coralberry, highbush		American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar.
UgvB: Urban land.			 	 	
Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Caroling poplar.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of					
and soil name	<8	8-15	16-25	26-35	>35 	
UgvC: Urban land.	 	 	 	 	 	
Tyner	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.	
UgvD: Urban land.	 -	 	 	 -	 	
	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	hackberry, serviceberry,	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	 Eastern cottonwood, imperial Carolina poplar. 	
UhmA: Urban land.	 	 	 	 	 	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	pine, green ash, imperial Carolina	
UhmB: Urban land.	 	 - -	 - -	 	 	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	pine, green ash, imperial Carolina	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of					
and soil name	 <8 	8-15	16-25	26-35	>35	
UhoC: Urban land.	 	 	 	 	 	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
UhoD: Urban land.	 			 		
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	blackhaw, hazel alder, hazelnut,	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
UhpC: Urban land.	 	 	 	 	 	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	

Table 8.--Windbreaks and Environmental Plantings--Continued

Wan sambal	Trees having predicted 20-year average height, in feet, of					
Map symbol and soil name	 <8 	8-15	16-25	26-35	>35	
UhpC: Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
UhpD: Urban land.	 	 -	 -	 	 -	
Hillsdale	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
UhwA: Urban land.	 	 - 	 - 	 	 	
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.			Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.	
UhwB: Urban land.	 	 - -	 - -	 	 - -	
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.		'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	<u> </u>			height, in feet, of	
and soil name	<8 	8-15 	16-25 	26-35 	>35
UhwC: Urban land.	 				
Martinsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut,	American plum, common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.		
UkaA: Urban land.	 	 	 	 	
Maumee	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	
UkeA: Urban land.	 	 	 	 	
Milford	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry,	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	:
UkxA: Urban land.	 	 	 	 	
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol					
and soil name	<8 	8-15 	16-25 	26-35 	>35
UkxB: Urban land.	 	 	 	 	
Oshtemo	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree
UkxC: Urban land.	 - -	 	 	 	
Oshtemo	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
UmfB: Urban land.	 	 	 	 	
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.			Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
Metea	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	:	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	 <8 	8-15	16-25	26-35	>35
UmfC: Urban land.					
Riddles	 American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth		'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
UmfD: Urban land.	 				
Riddles	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth	common persimmon, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry,	'	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
Metea	 American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry, roughleaf dogwood, shining	eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington	 Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
UmpA: Urban land.	 			 	
Schoolcraft	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry, roughleaf dogwood, shining	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of						
and soil name	<8 	8-15 	16-25 	26-35 	>35 		
UmuA: Urban land.							
Southwest	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white- cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.			
UmwA: Urban land.				 	 		
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	1	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.			
UmwB: Urban land.	 	 	 	 	 		
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white- cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.		
UmwC: Urban land.	 	 	 	 	 		
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining		Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.			

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Trees having predicted 20-year average height, in feet, of					
and soil name	<8	8-15	16-25 	26-35 	>35 	
UmwD: Urban land.	 	 	 	 	 	
Tracy	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	roughleaf dogwood, shining	'	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.	
UmxA: Urban land.	 			 		
Troxel	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth		•	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.	
UnoA: Urban land.	 	 	 	 	 	
Whitaker	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	 Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.	
UnqB: Urban land.	 	 	 	 	 	
Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn, hazelnut, nannyberry, pawpaw, roughleaf	serviceberry, shingle oak, Washington hawthorn.	'	imperial Carolina poplar, red	

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	 				
and soil name	<8 	8-15	16-25 	26-35 	>35
UnqB:	 	 	 	 	
Crosier	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
UntA: Urban land.	 	 	 	 	
Wunabuna, drained-	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Caroling poplar, red maple, river birch, silver maple.
Usl: Udorthents, rubbish.	 	 	 	 	
W: Water.	 	 	 	 	
WcnAI: Waterford	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, pawpaw, roughleaf dogwood.	eastern redcedar,	Blackgum, bur oak, green ash, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WoaA: Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn,	serviceberry, shingle oak, Washington	•	imperial Carolina poplar, red

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	Ti	rees naving predict	ed 20-year average	neight, in feet, of	- -
and soil name	<8 	8-15	16-25 	26-35	>35
WoaB2: Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn,	serviceberry, shingle oak, Washington	'	imperial Carolina poplar, red
WoaC2: Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn,	serviceberry, shingle oak, Washington		imperial Carolina poplar, red
WobB: Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	cockspur hawthorn,	serviceberry, shingle oak, Washington		imperial Carolina poplar, red
Crosier	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white- cedar, shingle oak, tamarack, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WrxAN: Wunabuna, drained-	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	alder,	Downy hawthorn, northern white- cedar, tamarack.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol	11	rees naving predict	ed 20-year average .	height, in feet, of	
and soil name	<8	8-15	16-25	26-35	>35
WtbA:	 	 		 	
Whitaker	American elder,	Arrowwood,	Common persimmon,	Blackgum, bur oak,	Eastern
	black chokeberry,	blackhaw,	eastern redcedar,	eastern white	cottonwood,
	highbush	cockspur	hackberry,	pine, green ash,	imperial Carolin
	cranberry,	hawthorn, hazel	northern white-	Norway spruce,	poplar, red
	ninebark,	alder,	cedar, shingle	pin oak,	maple, river
	redosier dogwood,	nannyberry,	oak, tamarack,	Shumard's oak,	birch, silver
	silky dogwood,	pawpaw, prairie	Washington	swamp white oak,	maple.
	spicebush.	crabapple,	hawthorn.	white ash.	
		roughleaf			
		dogwood,			
		witchhazel.			
WujB:	 	 	 	 	
Williamstown	American elder,	Arrowwood,	American plum,	Black cherry,	 Eastern
	black chokeberry,		common persimmon,		cottonwood,
	common juniper,	cockspur	eastern redcedar,	'	eastern white
	coralberry, gray	hawthorn,	hackberry,	northern red oak,	pine, green ash,
	dogwood, highbush	hazelnut,	northern white-	Norway spruce,	imperial Carolina
	cranberry,	nannyberry,	cedar, prairie	pin oak, red	poplar, red
	ninebark,	pawpaw, roughleaf	crabapple,	pine, swamp white	maple, river
	redosier dogwood,	dogwood, shining	serviceberry,	oak, tuliptree,	birch, silver
	silky dogwood,	sumac, smooth	shingle oak,	white ash, white	maple.
	spicebush.	sumac, staghorn	Washington	oak.	
		sumac, wild sweet	hawthorn.		
	ĺ	crab, witchhazel.		ĺ	
				<u> </u>	
Moon	American elder,	Arrowwood,	American plum,	Black walnut,	Eastern
	common juniper,	blackhaw, hazel	eastern redcedar,		cottonwood,
	coralberry, gray	alder, hazelnut,	hackberry,	oak, northern red	'
	dogwood, highbush		northern white-	oak, Norway	pine, green ash,
	cranberry,	roughleaf	cedar, prairie	spruce, pin oak,	imperial Carolina
	ninebark,	dogwood, shining	crabapple,	swamp white oak.	poplar, red
	redosier dogwood,	sumac, smooth	serviceberry,		maple, river
	silky dogwood,	sumac, staghorn	Washington		birch, silver
	spicebush.	sumac, wild sweet	'		maple, tuliptree
	I	crab, witchhazel.	l	I	l

Table 9.--Forestland Productivity

(Absence of an entry indicates that information was not available.)

	Potential produ			
Map symbol and soil name	 Local plant names 	'	Volume of wood fiber	Trees to plant
AahAK: Abscota		 	cu ft/ac	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
AatAN: Ackerman, drained	 red maple 	 46 		American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
AbhAU:	 red maple silver maple tamarack 	78	29	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Adrian, undrained. ApuAN: Antung, drained	 green ash	53 78	29 29 29	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.

Table 9.--Forestland Productivity--Continued

Map symbol and	Po	tent	ial prod	ictivi:	t <u>y</u>	
soil name	Local p	lant			Volume of wood fiber	Trees to plant
AxvA:					cu ft/ac 	
Auten	- northern tuliptre white oa 	e		95	100	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
BaaA: Bainter				 		Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BaaB: Bainter	 - northern 	red	oak	 72 	 57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BaaC2: Bainter	 - northern 	red	oak	72 72 	57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
BbmA: Baugo	 - tuliptre white as 				114 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.

Table 9.--Forestland Productivity--Continued

Map symbol and	I	Potent	ial produ	uctivi	t y	
soil name	Local	plant			Volume of wood fiber cu ft/ac	
	İ					
BmgA: Blount			oak			Bitternut hickory, blackgum, bur oak eastern white pine*, green ash, northern red oak* Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
BshA: Brady	 			 		Bitternut hickory, blackgum, bur oak eastern white pine*, green ash, northern red oak* Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
BsxA: Brems			e pine			Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Morocco	 			 	 	Blackgum, bur oak, eastern cottonwood, eastern redcedar, green ash, hackberry, red maple, shagbark hickory, shingle oak, silver maple
BteA: Brems			e pine		57 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

Map symbol and		ocent1	lal produ			
soil name	Local	plant			Volume of wood fiber	
	 			 	cu ft/ac 	
BuuA: Brookston	 pin oak 			 86 	 72 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory silver maple, swamp white oak, tamarack.
CmbAI:		-h		 70	70	Dischaum bum sah
Cohoctah					•	Blackgum, bur oak, green ash, pin
						oak, red maple, shellbark hickory silver maple, swamp white oak, tamarack.
CnbA: Coloma	 			 	 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
CnbB: Coloma	 			 	 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
CnbC: Coloma	 			 	 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

	Potenti	al produ	ту		
Map symbol and soil name	 Local plant 		index	Volume of wood fiber cu ft/ac	 Trees to plant
CnbD:	i I		 		
CrrA:	 		 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Coupee	 		 		Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
CvdA: Crosier	 northern red tuliptree 				Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
CvdB: Crosier	 northern red tuliptree 				Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
CwkA: Crumstown	 white oak eastern white 		 70 85 	200 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	Potential pro	<u> </u>		
Map symbol and soil name	 Local plant names 	'	Volume of wood fiber cu ft/ac	Trees to plant
CwkB:	 - -		i I	
	white oakeastern white pine-		:	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	 northern red oak	 - 70	 57	Bitternut hickory,
	white oak		:	blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
EchAN: Edwards, drained	 red maple 	 - 56 	 29 	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
EchAU: Edwards, undrained.	 -			
Edwards, undramed.	 			
EcrAU: Edselton, drained EcrAU:	red maple silver maple 		29 29 1 1 1 1 1 1	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Edselton, undrained.	 			

Table 9.--Forestland Productivity--Continued

		Potent:	ial prod			
Map symbol and soil name	Local	plant	names	index	 Volume of wood fiber cu ft/ac	
EmeA: Elston				 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
GczA: Gilford	. –				57 43 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
GdnA: Gilford	. –					Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
HfbAN: Henrietta, drained. HfbAU:	 			 	 	
Henrietta, undrained.	 			 	 	
HkkA: Hillsdale						Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
HkkB: Hillsdale					 100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	Potential	productivi	ty	
Map symbol and soil name	 Local plant nan 		Volume of wood fiber	 Trees to plant
HknC2:	 	 	cu ft/ac 	
Hillsdale	tuliptree white oak			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	eastern white p: white oak 		!	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
HknD2: Hillsdale	 tuliptree white oak 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	eastern white p: white oak 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
HkpC2: Hillsdale	tuliptree white oak 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potenti	ial prod	ıctivi	ty	
soil name	 Local plant 	names	'	Volume of wood fiber	Trees to plant
HkpC2:	 		 	cu ft/ac 	
Tracy HkpD2:	northern red tuliptree white oak		98	•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Hillsdale	tuliptree white oak			•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Tracy	northern red tuliptree white oak 		98	•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
HtbAU: Houghton, drained HtbAU: Houghton, undrained.	 silver maple			•	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.
JaaAK: Jamestown	 tuliptree 		 90 	 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.

Table 9.--Forestland Productivity--Continued

Y	Poter	ntial prod			
Map symbol and soil name	 Local plan 	nt names	'	 Volume of wood fiber	<u> </u>
MfaA: Martinsville	 - tuliptree- white oak- - - - -				Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MfaB2: Martinsville	 tuliptree- white oak- 				Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MfaC2: Martinsville	 tuliptree- white oak- 				Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MfraN: Madaus, drained	 red maple		 55 	 29 	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
MfrAU: Madaus, undrained. MgcA: Maumee	 pin oak 		 70 	į	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potenti	ial prod	 		
soil name	Local plant		'	Volume of wood fiber cu ft/ac	Trees to plant
MgdAN: Martisco, drained	 red maple 		 56 		American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
MhaA: Maumee	 pin oak 		 70 	 57 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
MhbA: Maumee	 pin oak 		 70 		Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
	 white oak tuliptree 			•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
MmdC3: Miami	 white oak tuliptree 			100	Black oak, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potential pr	 		
soil name	 Local plant names 		Volume of wood fiber cu ft/ac	_
	İ	i	İ	
MmdD3:				
	white oak tuliptree			Black oak, bur oak chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
MouA: Milford	 	 		Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory silver maple, swamp white oak, tamarack.
MsaA: Mishawaka	 black oak 	 82 	 57 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
MtsB2:				
Morley	northern red oak tuliptree			Black oak, bur oak chinkapin oak,
	white oak		57 	eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.
MtsC2:				
Morley	northern red oak	90	86 57	Black oak, bur oak chinkapin oak, eastern white pine, green ash, northern red oak, shagbark hickory, shingle oak, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	Potential productivity						
Map symbol and							
soil name	-	'	Volume	Trees to plant			
		index	of wood				
			fiber				
			cu ft/ac				
MubD3:		 	 				
Morley	northern red oak	80	57	Black oak, bur oak,			
	tuliptree	'	86	chinkapin oak,			
	white oak	80	57	eastern white			
				pine, green ash,			
				northern red oak,			
				shagbark hickory,			
				shingle oak,			
				tuliptree, white			
	1			ash, white oak.			
MvhAN:	1	 	 	İ			
Moston, drained	red maple	 51	29	American sycamore,			
,		ĺ	İ	bur oak, eastern			
	İ	İ	į	cottonwood, green			
	ĺ			ash, northern			
				white-cedar, pin			
				oak, red maple,			
				shellbark hickory,			
				silver maple,			
				swamp white oak,			
				tamarack.			
MvhAU:	 	 	 	 			
Moston, undrained.	 	 	! 	 			
	İ	İ	İ				
MvkA:							
Morocco				Blackgum, bur oak,			
				eastern			
				cottonwood,			
	1			eastern redcedar,			
		 		green ash,			
	 	l I	 	hackberry, red maple, shagbark			
	 	l I	 	hickory, shingle			
	1	 		oak, silver maple.			
	İ		İ	 			
MwzAN:	ĺ		ĺ				
Muskego, drained	red maple	51	29	American sycamore,			
				bur oak, eastern			
				cottonwood, green			
		 		ash, northern			
	 	 		white-cedar, pin			
	 	l I		oak, red maple, shellbark hickory,			
	 	 	I I	silver maple,			
		' 	İ	swamp white oak,			
	İ	İ	İ	tamarack.			
	İ						
MwzAU:	!			<u> </u>			
Muskego, undrained.							
	I		I	I			

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	 Local plant names 		 Volume of wood fiber	Trees to plant
OkrA: Oshtemo	 white oak eastern white pine 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OkrB: Oshtemo	white oak			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OkrC2: Oshtemo	 white oak eastern white pine 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OkrD: Oshtemo	 white oak eastern white pine 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OlcA: Oshtemo	eastern white pine jack pine red pine white oak	68 78		Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potential produ	 -		
soil name		1	Volume of wood fiber	Trees to plant
		 	cu ft/ac	
OlcB: Oshtemo	 			 Black cherry, blac walnut, bur oak,
				eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Olcn:	eastern white pine white oak 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OlcD: Oshtemo	eastern white pine	 85	 200	 Black cherry, black
	white oak 	70 	57 	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
OmgA: Osolo	 black oak	 70	 57	Black oak, bur oak,
	red pine	'	129	chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
PaaAN: Palms, drained	 silver maple red maple 		29	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak.

Table 9.--Forestland Productivity--Continued

		Poter	nti	al produ	ıctivi	ty	
Map symbol and soil name	 Loca 	al plan	nt			Volume	Trees to plant
PaaAU: Palms, undrained	 				 	fiber cu ft/ac 	American sycamore,
	 				 		cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Pmg: Pits, gravel. PxlA:	 				 	 	 - -
Psammaquents. Pxo: Psamments.	 				 	 	
QuiA: Quinn	 pin (oak			 86 	 72 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
QujA: Quinn	 pin	oak			 86 	 72 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
RenA: Rensselaer	 pin	oak			 86 	 72 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
ReyA: Rensselaer	 pin	oak			 86 		Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potenti	ial prod	uctivi	ty	
soil name	 Local plant 	names	'	Volume of wood	Trees to plant
RopA:	 		 	cu ft/ac 	
	white oak tuliptree northern red			•	Black cherry, black walnut, bur oak, eastern white
	 		 	 	pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	 white oak		70	57	Black cherry, black
	eastern white			:	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
RopB: Riddles	 white oak		 90	 72	 Black cherry, black
RIGGIES	tuliptree			100	walnut, bur oak,
	northern red				eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	white oak eastern white 			57 200 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
RopC2:					
Riddles	white oak tuliptree			•	Black cherry, black walnut, bur oak,
	northern red			100 72 	waintt, but oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Y	Potenti				
Map symbol and soil name	 Local plant : 			Volume of wood fiber	Trees to plant
	1			cu ft/ac	
RopC2:	 white oak				 Black cherry, blac
PopD2:	eastern white	pine	85	200 	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
RopD2: Riddles	 white oak	 	90	 72	 Black cherry, black
	tuliptree				walnut, bur oak,
	northern red 	oak 	90	72 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	white oak		70		Black cherry, black
	eastern white 	pine	85	200 	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
RoqB: Riddles	 white oak	 	90	 72	 Black cherry, black
RIGGIOD	tuliptree				walnut, bur oak,
	northern red (oak 	90	72 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Metea	white oak		80	57	Black cherry, black
	tuliptree eastern white 			172 	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Man gymbal and	Potential prod			
Map symbol and soil name		1	Volume of wood fiber cu ft/ac	Trees to plant
	İ	İ		
RoqC2:	 	 90	72	 Plack shamme black
Riddles	white oak tuliptree			Black cherry, black walnut, bur oak,
	northern red oak			eastern white
		 	 	pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Metea	white oak	80	57	Black cherry, black
	tuliptree	86	86	walnut, bur oak,
	eastern white pine 	75 	172 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
RoqD2:	İ	İ		İ
Riddles	white oak			Black cherry, black
	northern red oak tuliptree			walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Metea	white oak	80	57	Black cherry, black
	tuliptree			walnut, bur oak,
	eastern white pine 	75 	172 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
SdzA: Selfridge	 	 	 	Bitternut hickory, blackgum, bur oak eastern white pine*, green ash, northern red oak* Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	 Local r 	olant			 Volume of wood fiber	 Trees to plant
SdzA: Crosier	 northern tuliptre				114	 Bitternut hickory, blackgum, bur oak, eastern white
	 			 	 -	pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
SdzaB: Selfridge	 eastern	cotto	onwood	 90 	 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
Brems	eastern black oa 				:	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
SesA: Schoolcraft.	 			 	 	
SnlA: Southwest	 pin oak- red mapl 				43 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
TmpA: Tracy	 northern tuliptre white oa 	e		98	100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potenti				
soil name	Local plant		'	Volume of wood fiber cu ft/ac	Trees to plant
TmpB.			 	 	 -
	northern red tuliptree white oak		98		Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
TmpC2: Tracy	 northern red	oak	 90	 72	 Black cherry, black
	tuliptree white oak 		98		walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
TmpD: Tracy	northern red tuliptree white oak		98		Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white
			 		ash, white oak.
TnwA: Troxel	 	 		Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.	
TxuA: Tyner	 black oak 		 74 		Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

Man gumbol and	ļ	Potent:			
Map symbol and soil name	Local	. plant	'	Volume of wood fiber	Trees to plant
TxuB:	 		 	cu ft/ac 	
TxuC:	black	oak	 74 	 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Tyner	 black 	oak	 74 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
TxuD: Tyner TxuF:	 black 	oak	 74 	 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Tyner	 black 	oak	 74 	57 	Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Udorthents, loamy.	i				I

Table 9.--Forestland Productivity--Continued

	Po	tent:	ial produ	uctivi	ty	
Map symbol and soil name	Local p	lant			Volume of wood fiber	Trees to plant
					cu ft/ac 	
UdeA: Urban land.	 			 	 	
Bainter	northern	red	oak	72 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UdeB: Urban land.					 	
Bainter	 northern 	red	oak	 72 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UdeC: Urban land.					 	
Bainter	 northern 	red	oak	 72 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UdkA: Urban land.	i !			!	 	
Brady	 			 	 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.

Table 9.--Forestland Productivity--Continued

	Po	otent:	ial produ	ıctivi	ty	
Map symbol and soil name	 Local] 	plant			Volume of wood fiber	Trees to plant
	 norther tuliptr white or	ee		95	100 57 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
UeaA: Urban land. Crosier	 norther: tuliptr: 				114 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
Urban land.	 pin oak red map: 				43	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Urban land.	 northern black or 				57 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Morocco	 			 	 	Blackgum, bur oak, eastern cottonwood, eastern redcedar, green ash, hackberry, red maple, shagbark hickory, shingle oak, silver maple.

Table 9.--Forestland Productivity--Continued

Man gambal and	Potent:	ial prod	uctivi	<u> </u>	
Map symbol and soil name	 Local plant 	names	'	Volume of wood fiber	Trees to plant
	 			cu ft/ac	
UfbA: Urban land.	 		 	 	
Brookston	pin oak 		86 	72 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UfhA: Urban land.	i !		į Į		 -
Coloma	 		 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
Urban land.	 		 	 	
Coloma	 		 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
UfhC: Urban land.	 		 	 	
Coloma	 		 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

		ıctivi	ty			
Map symbol and soil name	Local	plant		•	Volume of wood fiber	Trees to plant
UfmA: Urban land. Coupee				 	cu ft/ac	Black oak, blackgum, bur oak, chinkapin oak, eastern white pine, green ash, northern red oak, scarlet oak, shagbark hickory, shingle oak, tuliptree, white oak.
UfrA: Urban land. Del Rey UftA:	 white (oak		 70 	 57 	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
Urban land. Elston UfzA:				 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Urban land.	 black 	oak		 82 	 - - -	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

Map symbol and	Potential prod			
soil name	 Local plant names 	'	Volume of wood fiber cu ft/ac	Trees to plant
UgaA: Urban land.		 	cu it/ac 	
Morocco	 	 	 	Blackgum, bur oak, eastern cottonwood, eastern redcedar, green ash, hackberry, red maple, shagbark hickory, shingle oak, silver maple
UglA: Urban land.	 	 	 	
	black oak	70		Black oak, bur oak chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
UgrA: Urban land.	 	 	 	
Rensselaer	white oak pin oak 			Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory silver maple, swamp white oak, tamarack.
UgsA: Urban land.	 	 	 	
Riddles	 white oak tuliptree			 Black cherry, blac walnut, bur oak,
	northern red oak		72 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	white oak			Black cherry, blac walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	[Potent:	ial prod	uctivi	ty	
Map symbol and soil name	 Local 	plant		'	 Volume of wood fiber	 Trees to plant
				 	cu ft/ac	
UgsB: Urban land.				 	 	
Riddles						 Black cherry, black walnut, bur oak,
	northe	rn red	oak	90 	72 	eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo			e pine			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UgvA: Urban land.	 			 	 	
Tyner	 black	oak		 74 	 57 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
UgvB: Urban land.	!			!	 	
Tyner	 black	oak		 74 	 57 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.

Table 9.--Forestland Productivity--Continued

Map symbol and	F	otenti			
soil name	 Local 	plant		Volume of wood fiber	Trees to plant
UgvC: Urban land.	 		 	cu ft/ac 	 - -
Tyner	 black o 	ak	 74 	 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
UgvD: Urban land.			 		
Tyner	 black c 	ak	 74 	 57 	Black oak, bur oak, chinkapin oak, eastern cottonwood, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
UhmA: Urban land.			 	 	
Hillsdale				72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UhmB: Urban land.	 		 	 	
Hillsdale				72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	Potential prod	İ		
Map symbol and soil name	 Local plant names 		 Volume of wood fiber	 Trees to plant
UhoC: Urban land.	 	 	cu ft/ac 	
Hillsdale	 tuliptree white oak 		72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	eastern white pine white oak		57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UhoD: Urban land.	 	 	 	
Hillsdale	 tuliptree white oak 		72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Oshtemo	 eastern white pine white oak 		57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	F	otent:	ial produ	uctivi	ty	
Map symbol and soil name	 Local 	plant			 Volume of wood fiber	
	 				cu ft/ac 	
UhpC: Urban land.	 			 	 -	 - -
Hillsdale				98 90 	72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	tuliptr	ee	oak	98	100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UhpD: Urban land.					 	
Hillsdale					72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	tuliptr	ee	oak	98	100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	F	otent	ial prod	ıctivi	ty	
Map symbol and soil name	 Local 	plant		'	 Volume of wood fiber	Trees to plant
UhwA: Urban land.	 			 	cu ft/ac 	 - -
Martinsville					57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UhwB: Urban land. Martinsville	 tuliptr	:ee		 98	 100	 Black cherry, black
					57 	walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UhwC: Urban land.	 			 	 	
Martinsville					•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UkaA: Urban land. Maumee	 pin oak 	:		 70 	į	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.

Table 9.--Forestland Productivity--Continued

	Potenti			
Map symbol and soil name	 Local plant : 	index	 Volume of wood fiber	_
UkeA:	 	 	cu ft/ac 	
Urban land.				
Milford	 	 	 	Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UkxA: Urban land.		 		
Oshtemo	 eastern white white oak 			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UkxB: Urban land.	 	 	 	
Oshtemo	eastern white white oak			Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Urban land.				
Oshtemo	 eastern white white oak 		57 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	Potential produ			
Map symbol and soil name	 Local plant names 	'	Volume of wood fiber	Trees to plant
UmfB: Urban land.		 	cu ft/ac	
	white oak	98	100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Metea	white oaktuliptreeeastern white pine		86	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UmfC: Urban land.	 	 		
Riddles	•			Black cherry, black
	tuliptree northern red oak			walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	white oak	86	86 172 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Man armbal and	Potential prod			
Map symbol and soil name		'	Volume of wood fiber	Trees to plant
		 	cu ft/ac	
UmfD: Urban land.	 	 	 	
Riddles	white oak northern red oak tuliptree	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Metea	white oak tuliptree eastern white pine	86	86	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UmpA: Urban land.		 	 	
Schoolcraft. UmuA: Urban land.		 	 	
Southwest	pin oak red maple			Blackgum, bur oak, green ash, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
UmwA: Urban land.		 	 	
Tracy	northern red oak tuliptree white oak	98	100 72 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

	P	ial produ	uctivi	ty		
Map symbol and soil name	Local	plant			Volume of wood fiber	
	tuliptr	ee	oak	98	cu ft/ac 72 100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple,
UmwC: Urban land.	 			 	 	tuliptree, white ash, white oak.
Tracy	tuliptr	ee	oak	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	tuliptr	ee	oak	98	100	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
UmxA: Urban land. Troxel				 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Man work 1	Potential prod			
Map symbol and soil name	-	'	 Volume of wood fiber cu ft/ac	Trees to plant
UnoA: Urban land.	 	 	 	
orban rana.			İ	
Whitaker	northern red oak tuliptree white oak 	85	86 57	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
Urban land.	 -		ĺ	 -
Williamstown	 tuliptree white ash 		129 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Crosier	northern red oak tuliptree 		114	Bitternut hickory, blackgum, bur oak, eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
UntA: Urban land.	 	 	 	
Wunabuna, drained	 pin oak silver maple 	 86 82 	29 	American sycamore, bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
Usl: Udorthents, rubbish.	 	 	 	
W: Water.	 - - -	 	 	

Table 9.--Forestland Productivity--Continued

	Potent	ial prod	ıctivi	ty	
Map symbol and soil name	 Local plant 			Volume of wood	
WcnAI: Waterford	 		 	cu ft/ac 	Bitternut hickory, blackgum, bur oak, green ash, pin oak, shellbark hickory, Shumard's oak, swamp white oak.
WoaA: Williamstown	 tuliptree 		 90 	•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
WoaB2: Williamstown	 tuliptree white ash 				Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
	 tuliptree white ash 			•	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
WobB: Williamstown	 tuliptree 		 90 	 	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

Table 9.--Forestland Productivity--Continued

Man gymbal and	Potent				
Map symbol and soil name	Local plant	names	'	Volume of wood fiber cu ft/ac	
	i		İ		İ
WobB: Crosier	 - northern red tuliptree				 Bitternut hickory, blackgum, bur oak
March V.			 		eastern white pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
WrxAN: Wunabuna, drained	 - pin_oak		 86	 72	 American sycamore,
mandada, drariod	silver maple				bur oak, eastern cottonwood, green ash, northern white-cedar, pin oak, red maple, shellbark hickory, silver maple, swamp white oak, tamarack.
WtbA:		1-			
Whitaker	- northern red tuliptree white oak		85	86	Bitternut hickory, blackgum, bur oak, eastern white
	 		 	 	pine*, green ash, northern red oak*, Shumard's oak, swamp white oak, tuliptree*, white ash, white oak*.
WujB: Williamstown	 - tuliptree		 90	 129	 Black cherry, black
	white ash				walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.
Moon	- eastern white				 Black cherry, black
	tuliptree white oak 				walnut, bur oak, eastern white pine, green ash, northern red oak, shagbark hickory, Shumard's oak, sugar maple, tuliptree, white ash, white oak.

 $[\]star$ The following species, eastern white pine, northern red oak, tuliptree, and white oak are not recommended in low lying areas of these soils.

Table 10a.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

and soil name	Pct. of map unit	construction o	f	Suitability fo log landings	r	Soil rutting hazard	
		'	Value	Rating class and	Value	Rating class and limiting features	Value
AahAK: Abscota	 80 	'	 0.50	 Moderately suited: Flooding	 0.50	 Moderate: Strength	
AatAN: Ackerman, drained	 85 	Strength	 1.00 1.00	Strength	 1.00 1.00 0.50	 Severe: Strength 	 1.00
Abhan: Adrian, drained	 75 	•	 0.75 		 1.00 1.00	 Moderate: Strength 	 0.50
AbhAU: Adrian, undrained	 75 	:	 0.75	 Poorly suited: Ponding	1.00	 Moderate: Strength	0.50
ApuAN: Antung, drained	 75 	•	 1.00	,	 1.00 0.50	 Moderate: Strength	
AxvA: Auten	 82 	'	 0.50	!	 0.50 0.50	 Severe: Strength	 1.00
BaaA: Bainter	 85 	 Slight 		 Well suited		 Moderate: Strength	0.50
BaaB: Bainter	 85 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
BaaC2: Bainter	 85 	 Slight 	 	 Moderately suited: Slope	0.50	 Moderate: Strength	0.50
BbmA: Baugo	 85 	:	 0.50	•	0.50	 Severe: Strength	
BmgA: Blount	 85 	•	 0.50 	!	 0.50 0.50	 Severe: Strength	 1.00
BshA: Brady	90	 Slight 	 	 Moderately suited: Wetness	 0.50	 Moderate: Strength	

Table 10a.--Forestland Management--Continued

	1							
Map symbol and soil name	Pct. of	'				Soil rutting hazard		
	map	haul roads and						
	unit	log landings						
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
BsxA:						 		
Brems	50	Slight	i	 Well suited	i	Moderate:	i	
			į			Strength	0.50	
Morocco	 40	 Slight	 	 Moderately suited:	 	 Moderate:		
			į	-	0.50		0.50	
BteA:	 		 		 	 		
Brems	80	Slight	į	Well suited	į	Moderate:	į	
	 	 	 	 	 	Strength	0.50	
BuuA:	į		į	<u> </u>	į		į	
Brookston	80			Poorly suited:	1.00	Severe:	11 00	
	l I	Strength	0.50	Ponding Wetness	1.00	Strength	1.00	
				Strength	0.50		İ	
CmbAI:		1		1		 		
Cohoctah	75	Severe:		Poorly suited:	i	Severe:	i	
	İ	Flooding	1.00	Flooding	1.00	Strength	1.00	
		Wetness	1.00	Wetness	0.50			
		Strength	0.50	Strength	0.50	 		
CnbA:							İ	
Coloma	85			Moderately suited:	:	Moderate:		
	 	Sandiness	0.50 	Sandiness	0.50 	Strength 	0.50	
CnbB:	İ	İ	İ	İ	i	İ	į	
Coloma	85			Moderately suited:	:	Moderate:		
	 	Sandiness	0.50	Sandiness	0.50 	Strength 	0.50	
CnbC:	İ	İ	İ	İ	İ	İ	İ	
Coloma	85			Moderately suited:	:	Moderate:		
	 	Sandiness	0.50	Sandiness Slope	0.50	Strength	0.50	
	į	į	į	į	į	į	į	
CnbD: Coloma	 85	 Moderate:	 	 Poorly suited:	 	 Moderate:	1	
00 10 ma		Sandiness	0.50	-	1.00	!	0.50	
				Sandiness	0.50			
CrrA:	 				 	 		
Coupee	85	Moderate:	İ	Moderately suited:	i	Severe:	i	
		Strength	0.50	Strength	0.50	Strength	1.00	
CvdA:	 							
Crosier	85	Moderate:		Moderately suited:		Severe:	1	
		Strength	0.50		0.50	Strength	1.00	
				Strength	0.50 	 		
CvdB:				 				
Crosier	80	Moderate: Strength	0.50	Moderately suited: Wetness	 0.50	Severe: Strength	1.00	
		Screngen		Strength	0.50	Screngen		
Cycle A .								
CwkA: Crumstown	80	 Slight		 Well suited		 Moderate:		
	i	į	İ	İ	i	Strength	0.50	

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map	construction o	Limitations affecting construction of haul roads and		r	Soil rutting hazard		
	unit 	·	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
CwkB: Crumstown	 80 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50	
DcrA: Del Rey	 85 		 0.50 	 Moderately suited: Wetness Strength	 0.50 0.50	 Severe: Strength	 1.00	
EchAN: Edwards, drained	 80 		 0.75 0.50	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength		
EchAU: Edwards, undrained	 75 	Wetness	 0.75 0.50	 Poorly suited: Ponding Strength	 1.00 0.50	 Severe: Strength		
EcrAN: Edselton, drained	 70 	Wetness	 1.00 0.50	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength 	1.00	
EcrAU: Edselton, undrained-	 70 	Wetness	 1.00 0.50	 Poorly suited: Ponding Strength	 1.00 0.50	 Severe: Strength Wetness	 1.00 0.50	
EmeA: Elston	 85 	 Slight 	 	 Well suited		 Moderate: Strength	0.50	
GczA: Gilford	 75 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 0.50	 Moderate: Strength	 0.50	
GdnA: Gilford	 75 	 slight 	 	 Poorly suited: Ponding Wetness	 - 1.00 0.50	 Moderate: Strength 	 0.50 	
HfbAN: Henrietta, drained	 80 	 Slight 	 	 Poorly suited: Ponding		 Moderate: Strength	0.50	
HfbAU: Henrietta, undrained	 75 		 0.75	 Poorly suited: Ponding 	 1.00	 Moderate: Strength 	0.50	
HkkA: Hillsdale	80	 Slight 	 	 Well suited 		 Moderate: Strength	0.50	
HkkB: Hillsdale	 80 	 slight 	 	 Well suited 	 	 Moderate: Strength	 0.50	

Table 10a.--Forestland Management--Continued

unit 	·	Limitations affecting construction of haul roads and			Soil rutting hazard		
į	1		İ		İ		
i	Rating class and	Value	Rating class and	Value	Rating class and	Value	
	limiting features		limiting features		limiting features		
HknC2:							
Hillsdale 55	Slight		Moderately suited:		Moderate:		
I			Slope	0.50	Strength	0.50	
I							
Oshtemo 30	Slight		Moderately suited:				
			Slope	0.50	Strength	0.50	
HknD2:							
Hillsdale 55	Slight		Poorly suited:	'	Moderate:		
Į.			Slope	1.00	Strength	0.50	
Oshtemo 30	 Gliabt	1	Poorly suited:	 	 Moderate:	1	
oblicemo	bilgit	1		:	Strength	0.50	
i		i	blope	1.00	berengen		
HkpC2:		i		İ			
Hillsdale 55	Slight	i	Moderately suited:	i	Moderate:	i	
i	i	i		'	Strength	0.50	
i	İ	İ	<u> </u>	į		i	
Tracy 30	Slight		Moderately suited:	ĺ	Moderate:	İ	
I			Slope	0.50	Strength	0.50	
I							
HkpD2:							
Hillsdale 55	Slight		Poorly suited:	:	Moderate:		
!			Slope	1.00	Strength	0.50	
_							
Tracy 30	Slight		Poorly suited:	:	Moderate:		
1		1	Slope	1.00	Strength	0.50	
HtbAN:		l I	 	l I	 	I	
Houghton, drained 75	 Moderate:	i	Poorly suited:		 Slight	İ	
	•			1.00		i	
i	İ	i		1.00	İ	i	
İ	İ	į		į		į	
HtbAU:							
Houghton, undrained- 75	Moderate:		Poorly suited:		Slight		
1	Wetness	0.75	Ponding	1.00			
!							
JaaAK:							
Jamestown 80	'		Poorly suited:	'	Severe:		
ļ		1.00		1.00		1.00	
<u> </u>	Strength	0.50		0.50	 	1	
i		i	berengen		 	İ	
MfaA:		i		i		i	
Martinsville 70	Moderate:	i	Moderately suited:	i	Severe:	i	
İ	Strength	0.50	Strength	0.50	Strength	1.00	
MfaB2:							
Martinsville 70			Moderately suited:		Severe:		
!	Strength	0.50	Strength	0.50	Strength	1.00	
W5-G0							
MfaC2: 80	Moderate	1	 Moderately suited:	 	 Severe:	I	
martinsville 80	'	0.50		0.50	'	1 00	
	Strength	0.50		0.50	Strength	1.00	
			 probe		 		
Mfran:		i					
Madaus, drained 80	Moderate:	i	Poorly suited:	i	Severe:	i	
i		:		1.00		1.00	
i		0.50	· -	1.00		İ	
i			Strength	0.50			

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map unit	construction of haul roads and		Suitability fo	r	Soil rutting hazard 		
	dilite 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value	
MfrAU: Madaus, undrained	 75 	 Severe: Wetness Strength	 1.00 0.50		 1.00 0.50	 Severe: Strength Wetness	 1.00 0.50	
MgcA: Maumee	 80 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 1.00	 Moderate: Strength	0.50	
MgdAN: Martisco, drained	 75 		 1.00 0.50	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength 	 1.00 	
MhaA: Maumee	 80 	 Severe: Wetness 	 1.00	 Poorly suited: Ponding Wetness	1.00	 Moderate: Strength	0.50	
MhbA: Maumee	 90 	 Severe: Wetness	 1.00	 Poorly suited: Ponding Wetness	1.00	 Moderate: Strength	0.50	
MmbC2: Miami	 80 	 Moderate: Strength	 0.50	 Moderately suited: Strength Slope	0.50	 Severe: Strength	1.00	
MmdC3: Miami	 80 	 Moderate: Strength	 0.50	 Moderately suited: Strength Slope	0.50	 Severe: Strength	1.00	
MmdD3: Miami	 80 	 Moderate: Strength	 0.50	 Poorly suited: Slope Strength	1.00	 Severe: Strength	1.00	
MouA: Milford	 85 	 Moderate: Strength 	 0.50 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength 	1.00	
MsaA: Mishawaka	 95 	 Slight 	 	 Well suited 		 Moderate: Strength	0.50	
MtsB2: Morley	75 75	 Moderate: Strength	 0.50	 Moderately suited: Strength 	0.50	 Severe: Strength	1.00	
MtsC2: Morley	 80 	 Moderate: Strength 	 0.50 	 Moderately suited: Slope Strength	0.50	 Severe: Strength 	1.00	

Table 10a.--Forestland Management--Continued

	1	I.		I.		1		
Map symbol and soil name	Pct. of map	Limitations affec construction o haul roads and	_	Suitability fo	r	Soil rutting hazard		
	unit			 		 		
	 	·	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
MubD3:						 		
Morley	80	 Moderate:		Poorly suited:		 Severe:		
2		'	0.50	Slope	1.00	Strength	1.00	
	İ	Strength	0.50	Strength	0.50	j	İ	
MvhAN:								
Moston, drained	80		 1.00	Poorly suited: Ponding	1.00	Severe: Strength	1.00	
	l I		1.00	-	1.00	Strength	1	
	İ			Wetness	1.00			
MvhAU:								
Moston, undrained	75		1 00	Poorly suited:	1.00	Severe:	1 00	
	l I		1.00	Ponding Strength	1.00	Strength Wetness	1.00 0.50	
	i							
MvkA:	İ		İ	İ	İ	İ	İ	
Morocco	85	Slight		Moderately suited:	:	Moderate:		
		 		Wetness	0.50	Strength	0.50	
MwzAN:	l I	 	 	 	 	 	I	
Muskego, drained	75	Severe:	i	Poorly suited:		Severe:		
	İ	Strength	1.00	Ponding	1.00	Strength	1.00	
		Wetness	0.75	Strength	1.00			
				Wetness	1.00	1		
MwzAU:	l I	 	 	 	 	 	I	
Muskego, undrained	70	Severe:	i	Poorly suited:		Severe:		
-	į	Strength	1.00	Ponding	1.00	Strength	1.00	
		Wetness	0.75	Strength	1.00	!		
OkrA:		1						
Oshtemo	 80	 Slight		 Well suited	 	 Moderate:	l	
			i			Strength	0.50	
	ĺ		ĺ	ĺ	İ	ĺ	İ	
OkrB:								
Oshtemo	80	Slight		Well suited		Moderate: Strength	0.50	
		 		 		Screngen	0.30	
OkrC2:	İ		İ				İ	
Oshtemo	80	Slight		Moderately suited:		Moderate:		
				Slope	0.50	Strength	0.50	
OkrD:		l I				 		
Oshtemo	 80	 Slight		Poorly suited:	 	 Moderate:	l	
	Ì		i	Slope	1.00	!	0.50	
				ĺ	ĺ	ĺ		
OlcA:								
Oshtemo	80	Slight 	1	Well suited	 	Moderate: Strength	0.50	
		 				Serenden		
OlcB:	i		i	İ	İ	İ	i	
Oshtemo	80	Slight		Well suited		Moderate:		
						Strength	0.50	
OlcC2:	l I	 	 	 	 	 		
Oshtemo	80	 Slight		 Moderately suited:		 Moderate:		
			i	Slope	0.50	:	0.50	

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map	construction o	f	Suitability fo	r	Soil rutting hazard	
	unit 	·	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OlcD: Oshtemo	 80 	 slight 	 	 Poorly suited: Slope	1.00	 Moderate: Strength	0.50
OmgA: Osolo	 85 	 Slight 	 	 Well suited 	 	 Moderate: Strength	
PaaAN: Palms, drained	 80 	'	 0.50	 Poorly suited: Ponding Strength	1.00	 Severe: Strength	1.00
PaaAU: Palms, undrained	 75 	 Moderate: Wetness Strength	 0.75 0.50		 1.00 0.50	 Severe: Strength	
Pmg: Pits, gravel	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
PxlA: Psammaquents	 85 	 Not rated 	 	 Not rated 		 Not rated 	
Pxo: Psamments	 85 	 Not rated 	 	 Not rated 		 Not rated 	
QuiA: Quinn	 80 	 Moderate: Strength	 0.50	 Poorly suited: Wetness Strength	1.00	 Severe: Strength	
QujA: Quinn	 75 	 Slight 	 	 Poorly suited: Wetness	1.00	 Moderate: Strength 	0.50
RenA: Rensselaer	 85 	 Moderate: Strength 	 0.50 	Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength 	1.00
ReyA: Rensselaer	 75 	 Moderate: Strength 	 0.50 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength 	 1.00
RopA: Riddles	 50 	 Slight 	 	 Well suited 		 Moderate: Strength	0.50
Oshtemo	35 	 Slight 	 	 Well suited 	 	 Moderate: Strength 	0.50

Table 10a.--Forestland Management--Continued

and soil name	Pct. of	construction o	f	 Suitability fo log landings	r	 Soil rutting hazard	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
RopB: Riddles	 50 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
Oshtemo	 35 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
RopC2: Riddles	 50 		 0.50	 Moderately suited: Slope	 0.50		 0.50
Oshtemo	 35 	 Slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	0.50
RopD2: Riddles	 50 	'	 0.50	 Poorly suited: Slope	 1.00	 Moderate: Strength	
Oshtemo	35	 Slight 	 	 Poorly suited: Slope		 Moderate: Strength	0.50
RoqB: Riddles	 55 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
Metea	 30 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
RoqC2: Riddles	 55 		 0.50	 Moderately suited: Slope	 0.50	 Moderate: Strength	
Metea	30	 Slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	0.50
RoqD2: Riddles	 50 		 0.50	 Poorly suited: Slope	 1.00	 Moderate: Strength	 0.50
Metea	30	 Slight 		Poorly suited: Slope	1.00	 Moderate: Strength	0.50
SdzA: Selfridge	 50 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
Crosier	 35 	1	 0.50	'	 0.50 0.50	 Severe: Strength	1.00
SdzaB: Selfridge	 50 	 Slight 	 	 Well suited 	 	 Moderate: Strength	
Brems	 35 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
SesA: Schoolcraft	 80 	 Moderate: Strength 	 0.50	 Moderately suited: Strength 	 0.50	 Severe: Strength	 1.00

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map unit	haul roads and	f	Suitability fo log landings	r	Soil rutting hazard 	
	<u> </u> 	Rating class and limiting features		Rating class and limiting features	'	Rating class and limiting features	Value
SnlA: Southwest	 75 		 0.50 	Wetness	 1.00 1.00 0.50	 Severe: Strength 	 1.00
TmpA: Tracy	 80 	 Slight 	 	 Well suited 	 	 Moderate: Strength 	 0.50
TmpB: Tracy	 80 	 Slight 		 Well suited 	 	 Moderate: Strength	0.50
TmpC2: Tracy	 80 	 Slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	0.50
TmpD: Tracy	 80 	 Slight 	 	 Poorly suited: Slope	'	 Moderate: Strength	0.50
TnwA: Troxel	 80 		 0.50	 Moderately suited: Strength		 Severe: Strength	
TxuA: Tyner	 85 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
TxuB: Tyner	 85 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
TxuC: Tyner	 85 	 Slight 	 	 Moderately suited: Slope		 Moderate: Strength	0.50
TxuD: Tyner	 85 	 Slight 	 	 Poorly suited: Slope	'	 Moderate: Strength	0.50
TxuF: Tyner	 80 	'	 1.00	 Poorly suited: Slope	 1.00	 Moderate: Strength	0.50
Uam: Udorthents, loamy	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
UdeA: Urban land	50	 Not rated	 	 Not rated		 Not rated	
Bainter	 40 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50

Table 10a.--Forestland Management--Continued

Map symbol and soil name	map	of construction of		Suitability fo log landings	r	Soil rutting hazard 	
		·	Value	Rating class and	Value	Rating class and limiting features	Value
UdeB:		 	 	 	 	 	
Urban land	50 	Not rated 	 	Not rated 	 	Not rated 	
Bainter	40	 Slight 	 	Well suited 	 	Moderate: Strength	0.50
UdeC: Urban land		 National		 Nat mated		 	
ordan land	50	Not rated		Not rated 		Not rated 	
Bainter	40 	Slight 	 	Moderately suited: Slope 	:	Moderate: Strength 	 0.50
UdkA:	į		į	į	į		į
Urban land	50	Not rated	 	Not rated	 	Not rated 	
Brady	40	 Slight 	 	Moderately suited: Wetness	'	Moderate: Strength	0.50
UdzA:							
Urban land	50	Not rated		Not rated		Not rated	
Auten	40 	•	0.50		:	Severe: Strength	1.00
UeaA:		 		 		 	
Urban land	50	Not rated		Not rated		Not rated	
Crosier	40 		 0.50	!	 0.50 0.50	 Severe: Strength	1.00
UeqA:		 		 		 	
Urban land	50	Not rated		Not rated		Not rated	
Gilford	 40 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 0.50	 Moderate: Strength 	 0.50
UewA:	į		į	<u> </u>	į		į
Urban land	50 	Not rated 		Not rated 		Not rated 	
Brems	25	Slight 	 	Well suited 	 	Moderate: Strength	0.50
Morocco	15	 Slight 		Moderately suited:	0.50	Moderate: Strength	0.50
UfbA:	 			 			
Urban land	50	Not rated		Not rated		Not rated	
Brookston	40		0.50		1.00	 Severe: Strength	1.00
		 		Wetness Strength	1.00	 	
UfhA:		[]	 	 		[
Urban land	50	 Not rated		 Not rated		 Not rated	
Coloma	40	 Moderate:		 Moderately suited:		 Moderate:	
		Sandiness	0.50	Sandiness	0.50	Strength	0.50

Table 10a.--Forestland Management--Continued

and soil name	of map	haul roads and		 Suitability fo log landings	r	 Soil rutting hazard	
	unit	·	1	1 =	1		1
	 	Rating class and limiting features		Rating class and limiting features		Rating class and limiting features	Value
	<u> </u>	IIMICING TEACUTES	l	IIMICING TEACUTES	1	IIMICING TEACUTES	1
UfhB:	İ	 	İ	 	i		
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40 	'	 0.50 	Moderately suited: Sandiness	 0.50 	Moderate: Strength	0.50
UfhC:	İ		İ	İ	į		İ
Urban land	50	Not rated	 	Not rated	i I	Not rated	İ
Coloma	40 	'	 0.50	!	 0.50 0.50	Moderate: Strength	0.50
UfmA:	l I	 	l I	 	1	 	I
Urban land	50	 Not rated	 	 Not rated		 Not rated	
Coupee	 40 	'	 0.50	 Moderately suited: Strength	 0.50	 Severe: Strength	1.00
UfrA:		 	i I	 	i	 	i
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Del Rey	 40 	1		!	 0.50 0.50	Severe: Strength	1.00
UftA:	l I	 	l I	 		 	I I
Urban land	50	 Not rated	 	 Not rated		 Not rated	
Elston	40	 Slight 	 	 Well suited 		 Moderate: Strength	0.50
UfzA:		 	i I	 	i	 	i
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated	į
Mishawaka	45	Slight 	 	Well suited	 	Moderate: Strength	0.50
UgaA:	l I	 	 	 	1	 	I
Urban land	50	 Not rated 	 	 Not rated 		 Not rated	
Morocco	40	 Slight 	 	Moderately suited: Wetness		Moderate: Strength	0.50
UglA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
	 	 	 	 -	 	 	į I
Osolo	40	 Slight 		 Well suited 		Moderate: Strength	0.50
UgrA:	I I	 	l I	 	1	 	I I
Urban land	50	 Not rated	 	 Not rated 		 Not rated	
Rensselaer	 40	 Moderate:	I I	Poorly suited:	I I	 Severe:	I
	 	'		Ponding Wetness	 1.00 1.00 0.50	Strength	1.00
				 scrength			

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map	construction o	f	Suitability fo	r	Soil rutting hazard	
	unit 	log landings Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UgsA:	 		 	1		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	
Riddles	 25 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
Oshtemo	 15 	 Slight 	 	 Well suited 		 Moderate: Strength	 0.50
UgsB:	 	 		 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Riddles	 25 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
Oshtemo	 15 	 Slight 	 	 Well suited 		 Moderate: Strength	0.50
UgvA:	 	 		 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Tyner	 40 	 Slight 	 	 Well suited 		 Moderate: Strength	0.50
UgvB:	 	 	 	 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	
Tyner	 40 	 Slight 	 	 Well suited 		 Moderate: Strength	0.50
UgvC: Urban land	 EO	 Not rated	 	 Not rated		 Not rated	
Oldan land	30	 				 	
Tyner	40	Slight 		Moderately suited: Slope	0.50	Moderate: Strength	0.50
UgvD:		 		 		 	
Urban land	50	Not rated		Not rated		Not rated	
Tyner	40	 Slight 		Poorly suited: Slope	1.00	Moderate: Strength	0.50
UhmA:	 	 		 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Hillsdale	 40 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
UhmB:		 					
Urban land	50	Not rated		 Not rated	-	 Not rated	
Hillsdale	 40 	 Slight 	 	 Well suited 		 Moderate: Strength	 0.50
UhoC:	 	 		 		 	
Urban land	50	Not rated		Not rated		 Not rated	
Hillsdale	 30 	 Slight 		 Moderately suited: Slope	 0.50	 Moderate: Strength	 0.50

Table 10a.--Forestland Management--Continued

	Pct. of map unit	construction o	f	Suitability fo log landings	r	Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UhoC: Oshtemo	 15 	 slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	 0.50
UhoD: Urban land	 50	 Not rated		 Not rated		 Not rated	
Hillsdale	 30 	 Slight 	 	 Poorly suited: Slope	1.00	 Moderate: Strength	0.50
Oshtemo	 15 	 Slight 	 	 Poorly suited: Slope		 Moderate: Strength	0.50
UhpC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Hillsdale	 30 	 Slight 	 	 Moderately suited: Slope		 Moderate: Strength	 0.50
Tracy	 15 	 Slight 	 	 Moderately suited: Slope		 Moderate: Strength	0.50
UhpD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Hillsdale	 30 	 Slight 	 	 Poorly suited: Slope	 1.00	 Moderate: Strength	0.50
Tracy	 15 	 Slight 	 	 Poorly suited: Slope		 Moderate: Strength	0.50
UhwA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Martinsville	40	!	0.50	 Moderately suited: Strength		 Severe: Strength	1.00
UhwB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Martinsville	 40 	!	 0.50	 Moderately suited: Strength	 0.50	 Severe: Strength	1.00
UhwC: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Martinsville	 40 		 0.50 	 Moderately suited: Strength Slope	 0.50 0.50	 Severe: Strength	 1.00
UkaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Maumee	 40 	 Slight 	 	Poorly suited: Ponding Wetness	 1.00 1.00	 Moderate: Strength	 0.50

Table 10a.--Forestland Management--Continued

and soil name	Pct. of map	construction of	£	Suitability for log landings	r	Soil rutting hazard	
	unit 	·	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UkeA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Milford	 40 		 0.50 	Wetness	 1.00 1.00 0.50	 Severe: Strength 	 1.00
UkxA:				 			i
Urban land	50	Not rated	İ	Not rated	İ	Not rated	İ
Oshtemo	 40 	 Slight 	 	 Well suited 	 	 Moderate: Strength	 0.50
UkxB:							
Urban land	50	Not rated		Not rated		Not rated	
Oshtemo	 40 	 Slight 	 	 Well suited 	 	 Moderate: Strength 	 0.50
UkxC:	İ						i
Urban land	50	Not rated		Not rated		Not rated	
Oshtemo	 40 	 Slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	0.50
UmfB:							
Urban land	50	Not rated		Not rated		Not rated	
Riddles	 25 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
Metea	 15 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50
UmfC:	 		 	 			
Urban land	50	 Not rated		 Not rated		 Not rated	İ
Riddles		 Madamaka		 Madamatalin midtad.		 Wadanata	
kiddles	23		0.50	Moderately suited: Slope	0.50	Moderate: Strength	0.50
Metea	 15 	 Slight 	 	 Moderately suited: Slope	 0.50	 Moderate: Strength	0.50
UmfD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 		 0.50	 Poorly suited: Slope	 1.00	 Moderate: Strength	 0.50
Metea	 15 		į	Poorly suited:	 	 Moderate: Strength	0.50
UmpA:		 		 		[
Urban land	50	Not rated		Not rated		Not rated	
Schoolcraft	 40 		 0.50	 Moderately suited: Strength	 0.50	 Severe: Strength	 1.00

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map		f	Suitability for log landings	r	Soil rutting hazard	
	unit					i İ	
	 	'	Value	Rating class and limiting features	Value 	Rating class and limiting features	Value
UmuA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Southwest	40	 Moderate:		Poorly suited:		 Severe:	
	İ	Strength	0.50		1.00	•	1.00
	 	 	 	'	1.00 0.50	 	
				[[
UmwA: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
				[[
Tracy	40	Slight		Well suited		Moderate:	
	l I	 		 		Strength	0.50
UmwB:	İ			 		 	
Urban land	50	Not rated	i	Not rated	İ	Not rated	i
Tracy	40	Slight		Well suited		Moderate:	
	l I	 	1	 	 	Strength	0.50
UmwC:		 		 		 	
Urban land	50	Not rated	i	Not rated	İ	Not rated	i
Tracy	40	Slight		Moderately suited:		Moderate:	
	 	 		Slope	0.50	Strength	0.50
UmwD:		 		 		 	
Urban land	50	Not rated	i	Not rated	į	Not rated	į
				!		!	
Tracy	40	Slight		Poorly suited:	'	Moderate:	
	l I	 	 	Slope	1.00	Strength	0.50
UmxA:	İ		i	 		 	i
Urban land	50	Not rated	İ	Not rated	İ	Not rated	İ
_							
Troxel	40	'	 0.50	Moderately suited: Strength	0.50	Severe: Strength	1.00
	 	screngen	0.30	screngen	0.30	Screngen	1.00
UnoA:	i		i				i
Urban land	50	Not rated	ĺ	Not rated	İ	Not rated	Ì
Whitaker	40		 0.50	Moderately suited: Wetness	0.50	Severe: Strength	1.00
	İ	Berengen		Strength	0.50	belengen	
	i	İ	i	j	į	İ	į
UnqB:		<u> </u>		!		!	!
Urban land	50	Not rated		Not rated		Not rated	
Williamstown	 25	 Moderate:	I I	 Moderately suited:	 	 Severe:	1
	23	1	0.50		'	Strength	1.00
	İ	- 	i	į	İ	į	İ
Crosier	15	'		Moderately suited:	'	Severe:	!
		Strength	0.50	Wetness	0.50	Strength	1.00
	1		1	Strength	0.50	1	

Table 10a.--Forestland Management--Continued

and soil name		unit log landings		Suitability fo log landings	r	Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UntA:		 		 		 	
Urban land	50	Not rated 		Not rated 		Not rated 	
Wunabuna, drained	40 		 0.50 		 1.00 1.00 0.50	Severe: Strength	 1.00
Usl: Udorthents, rubbish-	 100	 Not rated 	 	 Not rated 	 	 Not rated 	
W: Water	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
WcnAI: Waterford	 80 	Flooding	 1.00 0.50 		 1.00 0.50 0.50	 Strength 	1.00
WoaA: Williamstown	 85 	'	 0.50	 Moderately suited: Strength	 0.50	 Severe: Strength	 1.00
WoaB2: Williamstown	 85 		 0.50	 Moderately suited: Strength	 0.50	 Severe: Strength	 1.00
WoaC2: Williamstown	 80 	'	 0.50		 0.50 0.50	 Severe: Strength	1.00
WobB:		 		 			
Williamstown	50 		 0.50	Moderately suited: Strength	 0.50	Severe: Strength	1.00
Crosier	30		 0.50 		 0.50 0.50	Severe: Strength	1.00
WrxAN: Wunabuna, drained	 85 	1	 0.50 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	 Severe: Strength	1.00
WtbA: Whitaker	75 75		 0.50 	 Moderately suited: Wetness Strength	 0.50 0.50	 Severe: Strength	 1.00
WujB: Williamstown	 45 		 0.50	 Moderately suited: Strength	 0.50	Severe:	1.00
Moon	 40 	 Slight 	 	 Well suited 	 	 Moderate: Strength	0.50

Table 10b.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map	or off-trail eros		Hazard of erosi on roads and tra		Suitability for r	
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
AahAK: Abscota	 80 	 Slight 	 	 Slight 	 	 Moderately suited: Flooding	 0.50
AatAN: Ackerman, drained	 85 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Strength Wetness	 1.00 1.00 0.50
AbhAN: Adrian, drained	 75 	 - Histosol-Not rated Histosol taxonomic order		 	 1.00	 Poorly suited:	 1.00 1.00
AbhAU: Adrian, undrained	 75 	 Histosol-Not rated Histosol taxonomic order	 1.00	 Histosol-Not rated Histosol taxonomic order		 Poorly suited: Ponding	 1.00
ApuAN: Antung, drained	 75 	 slight 	 	 slight 	 	 Poorly suited: Ponding Wetness	 1.00 0.50
AxvA: Auten	 82 	 slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50
BaaA: Bainter	 85 	 Slight 	 	 Slight 		 Well suited 	
BaaB: Bainter	 85 	 Slight 	 	 Slight 	 	 Well suited 	
BaaC2: Bainter	 85 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	 0.50
BbmA: Baugo	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50
BmgA: Blount	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50
BshA: Brady	 90 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness	 0.50
BsxA: Brems	 50	 Slight	 	 Slight	 	 Well suited	

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map	Hazard of off-ro		Hazard of erosic		 Suitability for r (natural surfac	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
BsxA: Morocco	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness	 0.50
BteA: Brems	80	 Slight		 Slight	 	 Well suited	
BuuA: Brookston	 80 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	1.00
CmbAI: Cohoctah	 75 	 slight 	 	 Slight 	 	Strength Poorly suited: Flooding Wetness	0.50 1.00 0.50
CnbA: Coloma	 85 	 Slight 	 	 Slight 	 	Strength Moderately suited:	0.50
CnbB: Coloma	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Sandiness	0.50
CnbC: Coloma	 85 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Sandiness Slope	 0.50 0.50
CnbD: Coloma	 85 	 Slight 	 	 Moderate: Slope/erodibility 		 Poorly suited: Slope Sandiness	 1.00 0.50
CrrA: Coupee	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	 0.50
CvdA: Crosier	 85 	 Slight 		 Slight 	 	 Moderately suited: Wetness Strength	0.50
CvdB: Crosier	 80 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Wetness Strength	0.50
CwkA: Crumstown	 80 	 Slight 	 	 Slight 	 	 Well suited 	
CwkB: Crumstown	 80 	 Slight 	 	 Slight 	 	 Well suited 	
DcrA: Del Rey	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map	or off-trail eros		Hazard of erosi		Suitability for r	
	unit 	·	Value	 Rating class and limiting features		 Rating class and limiting features	Value
EchAN: Edwards, drained	 80 	'	1.00	 Histosol-Not rated Histosol taxonomic order	1.00	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
EchAU: Edwards, undrained	 75 		1.00		1.00	 Poorly suited: Ponding Strength	 1.00 0.50
EcrAN: Edselton, drained	 70 		1.00	 Histosol-Not rated Histosol taxonomic order	1.00	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
EcrAU: Edselton, undrained-	 70 	'	1.00		1.00	 Poorly suited: Ponding Strength	 1.00 0.50
EmeA: Elston	 85	 Slight 	 	 Slight 	 	 Well suited	
GczA: Gilford	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 0.50
GdnA: Gilford	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 0.50
HfbAN: Henrietta, drained	 80 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding	 1.00
HfbAU: Henrietta, undrained	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding	 1.00
HkkA: Hillsdale	 80	 Slight	 	 Slight	 	 Well suited	
HkkB: Hillsdale	 80	 Slight 	 	 Slight 		 Well suited	
HknC2: Hillsdale	 55 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
Oshtemo	30 30	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Slope 	 0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map	or off-trail eros		Hazard of erosic		Suitability for r (natural surfac	
	unit 	'	Value	 Rating class and limiting features	Value	Rating class and limiting features	Value
HknD2: Hillsdale	 55 	 Slight 	 	 Moderate: Slope/erodibility	'	 Poorly suited: Slope	 1.00
Oshtemo	30	 Slight 		 Moderate: Slope/erodibility	'	 Poorly suited: Slope	1.00
HkpC2: Hillsdale	 55 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	 0.50
Tracy	30	 Slight 		 Moderate: Slope/erodibility	'	 Moderately suited: Slope	0.50
HkpD2: Hillsdale	 55 	 Slight 	 	 Moderate: Slope/erodibility 	'	 Poorly suited: Slope	 1.00
Tracy	30	 Slight 		 Severe Slope/erodibility	 0.95	 Poorly suited: Slope	1.00
HtbAN: Houghton, drained	 75 		 1.00	 Histosol-Not rated Histosol taxonomic order	1.00	 Poorly suited: Ponding Wetness	 1.00 1.00
HtbAU: Houghton, undrained-	 75 	'	 1.00	 Histosol-Not rated Histosol taxonomic order	 1.00	 Poorly suited: Ponding	 1.00
JaaAK: Jamestown	 80 	 Slight 	 	 Slight 	 	Wetness	 1.00 0.50 0.50
MfaA: Martinsville	 70 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	 0.50
MfaB2: Martinsville	 70 	 Slight 		 Moderate: Slope/erodibility	 0.50	 Moderately suited: Strength	0.50
MfaC2: Martinsville	 80 	 Slight 	 	 Moderate: Slope/erodibility 	 0.50	 Moderately suited: Strength Slope	 0.50 0.50
MfrAN: Madaus, drained	 80 	 Slight 	 	 Slight 	 	Wetness	 1.00 1.00 0.50
MfrAU: Madaus, undrained	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Strength	 1.00 0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	or off-trail eros		Hazard of erosion on roads and trans		Suitability for roads (natural surface)		
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
MgcA: Maumee	 80 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 1.00	
MgdAN: Martisco, drained	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	 1.00 1.00	
MhaA: Maumee	 80 	 slight 	 	 Slight 	 	Strength Poorly suited: Ponding Wetness	0.50 1.00	
MhbA: Maumee	 90 	 Slight 	 	 Slight 	 	Wetness	 1.00 1.00	
MmbC2: Miami	 80 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Strength Slope	 0.50 0.50	
MmdC3: Miami	 80 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Strength Slope	 0.50 0.50	
MmdD3: Miami	 80 	 Slight 	 	 Severe Slope/erodibility		 Poorly suited: Slope Strength	 1.00 0.50	
MouA: Milford	 85 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50	
MsaA: Mishawaka	 95	 Slight	 	 Slight	 	 Well suited	 	
MtsB2: Morley	 75 	 Slight 	 	 Moderate: Slope/erodibility	'	 Moderately suited: Strength	 0.50	
MtsC2: Morley	 80 	 Slight 	 	 Severe Slope/erodibility 	 0.95	 Moderately suited: Slope Strength	 0.50 0.50	
MubD3: Morley	 80 	 Moderate: Slope/erodibility 	 0.50	 Severe Slope/erodibility 	 0.95	 Poorly suited: Slope Strength	 1.00 0.50	

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map	Hazard of off-ro		Hazard of erosi		Suitability for roads (natural surface) 	
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
MvhAN: Moston, drained	 80 		1.00	 Histosol-Not rated Histosol taxonomic order	 1.00	 Poorly suited: Ponding Strength Wetness	 1.00 1.00
MvhAU: Moston, undrained	 75 		1.00	 Histosol-Not rated Histosol taxonomic order	 1.00 	 Poorly suited: Ponding Strength	 1.00 1.00
MvkA: Morocco	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness	0.50
MwzAN: Muskego, drained	 75 		1.00	 Histosol-Not rated Histosol taxonomic order	 1.00 	 Poorly suited: Ponding Strength Wetness	 1.00 1.00 1.00
MwzAU: Muskego, undrained	 70 			 Histosol-Not rated Histosol taxonomic order	 1.00 	 Poorly suited: Ponding Strength	 1.00 1.00
OkrA: Oshtemo	 80 	 Slight 	 	 Slight 	 	 Well suited 	
OkrB: Oshtemo	 80 	 Slight 	 	 Slight 	 	 Well suited 	
OkrC2: Oshtemo	 80 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Slope 	 0.50
OkrD: Oshtemo	 80 	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	1.00
OlcA: Oshtemo	 80 	 Slight 	 	 Slight 	 	 Well suited 	
OlcB: Oshtemo	 80 	 Slight 	 	 Slight 	 	 Well suited 	
OlcC2: Oshtemo	 80 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
OlcD: Oshtemo	 80 	 slight 	 	 Moderate: Slope/erodibility 	'	 Poorly suited: Slope 	1.00
OmgA: Osolo	 85 	 Slight 	 	 Slight 	 	 Well suited	
PaaAN: Palms, drained	80 			 Histosol-Not rated Histosol taxonomic order	 1.00 	 Poorly suited: Ponding Strength	 1.00 0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map			Hazard of erosi on roads and tra		Suitability for r (natural surfac	
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PaaAU: Palms, undrained	 75 		1.00	 Histosol-Not rated Histosol taxonomic order	 1.00	 Poorly suited: Ponding Strength	 1.00 0.50
Pmg: Pits, gravel	 100	 Not rated 	 	 Not rated 	 	 Not rated 	
Px1A: Psammaquents	 85 	 Not rated 	 	 Not rated 	 	 Not rated 	
Pxo: Psamments	85	 Not rated 	 	 Not rated 	 	 Not rated 	
QuiA: Quinn	 80 	 Slight 	 	 Slight 	 	 Poorly suited: Wetness Strength	 1.00 0.50
QujA: Quinn	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Wetness	1.00
RenA: Rensselaer	 85 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness	
ReyA: Rensselaer	 75 	 Slight 	 	 slight 	 	Strength Poorly suited: Ponding Wetness Strength	0.50 1.00 1.00 0.50
RopA:	50	 Slight	 	 Slight		 Well suited	
Oshtemo	35	 Slight		 Slight	 	 Well suited	
RopB: Riddles	50	 Slight 	 	 Moderate: Slope/erodibility	0.50	 Well suited 	
Oshtemo	35	 Slight		 Slight		 Well suited	
RopC2: Riddles	50	 Slight 	 	 Moderate: Slope/erodibility	0.50	 Moderately suited: Slope	0.50
Oshtemo	35	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Slope 	 0.50
RopD2: Riddles	50	 Slight 	 	 Severe Slope/erodibility 	 0.95	 Poorly suited: Slope 	1.00
Oshtemo	35 	Slight 	 	 Moderate: Slope/erodibility 	0.50	 Poorly suited: Slope 	1.00

Table 10b.--Forestland Management--Continued

	Pct. of map			 Hazard of erosion on roads and tran		 Suitability for r (natural surfac 	
	map unit 	Rating class and	Value	 Rating class and	Value	 Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>
RoqB: Riddles	 55 	 Slight 	 	 Moderate: Slope/erodibility		 Well suited	
Metea	 30 	 Slight 	 	 Slight 	 	 Well suited 	
RoqC2: Riddles	 55 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
Metea	 30 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
RoqD2: Riddles	 50	 Slight 	 	 Severe Slope/erodibility		 Poorly suited: Slope	
Metea	 30 	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	 1.00
SdzA: Selfridge	 50	 Slight 	 	 Slight 	 	 Well suited 	
Crosier	35 	Slight 	 	Slight -	 	Moderately suited: Wetness Strength	0.50
SdzaB: Selfridge	 50	 Slight	 	 Slight	 	 Well suited	
Brems	 35 	 Slight 	 	 Slight 	 	 Well suited 	
SesA: Schoolcraft	 80 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	0.50
SnlA: Southwest	 75 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
TmpA: Tracy	 80 	 Slight 	 	 Slight 	 	 Well suited 	
TmpB: Tracy	 80 	 Slight 	 	 Moderate: Slope/erodibility		 Well suited	
TmpC2:	 80 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Slope 	 0.50
TmpD: Tracy	 80 	 slight 	 	 Severe Slope/erodibility 		 Poorly suited: Slope	 1.00
TnwA: Troxel	 80 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	0.50

Table 10b.--Forestland Management--Continued

and soil name	Pct. of	!		Hazard of erosic		Suitability for r (natural surface	
	unit	Rating class and		Rating class and			Value
	l	limiting features	l I	limiting features	l	limiting features	1
TxuA: Tyner	 85 	 Slight 	 	 Slight 	 	 Well suited 	
TxuB: Tyner	 85	 Slight	 	 Slight	 	 Well suited	
TxuC: Tyner	 85 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
TxuD: Tyner	 85 	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	1.00
TxuF: Tyner	 80 	•		 Severe Slope/erodibility		 Poorly suited: Slope	1.00
Uam: Udorthents, loamy	 100	 Not rated 	 	 Not rated 	 	 Not rated 	
UdeA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated	
Bainter	40	Slight		Slight	İ	 Well suited	i
UdeB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Bainter	 40	 Slight	 	 Slight	 	 Well suited	
UdeC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Bainter	 40 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	 0.50
UdkA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Brady	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness	0.50
UdzA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Auten	40 40 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	0.50
UeaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Crosier	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map	Hazard of off-ro		Hazard of erosi on roads and tra		Suitability for r (natural surface	
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UeqA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Gilford	 40 	 Slight 		 Slight 		 Poorly suited: Ponding Wetness	 1.00 0.50
UewA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Brems	 25	 Slight		 Slight		 Well suited	
Morocco	 15 	 Slight 		 Slight 		 Moderately suited: Wetness	 0.50
UfbA: Urban land	50	 Not rated 		 Not rated		 Not rated 	
Brookston	40 	 Slight 	 	 Slight 	 	Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
UfhA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Coloma	40	 Slight 		 Slight 			0.50
UfhB: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Coloma	40	 Slight 		 Slight 		 Moderately suited: Sandiness	0.50
UfhC: Urban land	50	 Not rated		 Not rated		 Not rated	
Coloma	40 	 Slight 	 	 Moderate: Slope/erodibility 	0.50	Moderately suited: Sandiness Slope	0.50
UfmA:		 		 	 	 	
Urban land	50 	Not rated		Not rated 		Not rated 	
Coupee	40 	Slight 	 	Slight 	 	Moderately suited: Strength	 0.50
UfrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Del Rey	40	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50 0.50
UftA: Urban land	 50	 Not rated 		 Not rated 		 Not rated 	
Elston	40	Slight	 	 Slight 	 	 Well suited 	

Table 10b.--Forestland Management--Continued

and soil name	of map	'		Hazard of erosic		Suitability for r natural surfac	
 	unit	Rating class and	Value		Value	Rating class and	Value
		limiting features	<u> </u>	limiting features	<u> </u>	limiting features	<u> </u>
UfzA:]	
Urban land	50	 Not rated 	 	 Not rated 	 	 Not rated 	
Mishawaka	45	 Slight 	 	 Slight 	 	Well suited	į į
UgaA:		 		 			
Urban land	50	Not rated 		Not rated 		Not rated 	
Morocco	40	Slight 	 	Slight 	 	Moderately suited:	0.50
UglA:		 	 	 	 	 	1
Urban land	50	Not rated	İ	Not rated	İ	 Not rated	į
Osolo	40	 Slight 	 	 Slight 	 	 Well suited	
UgrA:			İ				i
Urban land	50	Not rated 	 	Not rated 	 	Not rated	
Rensselaer	40	Slight	į	Slight	į	Poorly suited:	
		 	 	 	 	Ponding Wetness	1.00
į			į		İ	Strength	0.50
UgsA:			 		 		
Urban land	50	Not rated	 	Not rated	 	Not rated]
Riddles	25	 Slight 	 	 Slight 	 	 Well suited 	
Oshtemo	15	 Slight 	 	 Slight 	 	 Well suited 	
UgsB:			İ		İ		i
Urban land	50	Not rated	 	Not rated	 	Not rated	
Riddles	25	 Slight 	 	 Moderate: Slope/erodibility		 Well suited	
Oshtemo	15	 Slight	 	 Slight	 	 Well suited	
UgvA:		 	 	 	 	 	
Urban land	50	Not rated	İ	Not rated	İ	Not rated	į
Tyner	40	 Slight 	 	 Slight 	 	 Well suited	
UgvB:							İ
Urban land	50	Not rated	 	Not rated	 	Not rated	
Tyner	40	 Slight 	 	 Slight 	 	 Well suited	
UgvC:			İ		İ		i
Urban land	50	Not rated	 	Not rated 	 	Not rated	
Tyner	40	Slight 	 	Moderate: Slope/erodibility		Moderately suited: Slope	0.50
UgvD:		 		 			
Urban land	50	Not rated	 	Not rated	 	Not rated	
Tyner	40	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	1.00

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map			Hazard of erosic		Suitability for r natural surfac	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UhmA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Hillsdale	40	Slight		Slight		 Well suited	
UhmB: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Hillsdale	 40 	 Slight 	 	 Slight 	 	 Well suited 	
UhoC:	İ	 	i		 		
Urban land	50	Not rated		Not rated	 	 Not rated 	
Hillsdale	30	 Slight 		 Moderate: Slope/erodibility		Moderately suited:	0.50
Oshtemo	 15 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	 0.50
UhoD:	 	 		 	 	 	
Urban land	 50 	 Not rated 		 Not rated 	 	 Not rated 	
Hillsdale	30	 Slight 	į Į	 Moderate: Slope/erodibility		Poorly suited:	1.00
Oshtemo	 15 	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	1.00
UhpC:	 	 		 	 	 	
Urban land	 50 	 Not rated 		 Not rated 	 	 Not rated 	
Hillsdale	30	Slight 		Moderate: Slope/erodibility		Moderately suited: Slope	0.50
Tracy	 15 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
UhpD:	İ	! 		! 	 	! 	
Urban land	 50 	 Not rated 		 Not rated 	 	 Not rated 	
Hillsdale	30	 Slight 	 	 Moderate: Slope/erodibility		 Poorly suited: Slope	1.00
Tracy	 15 	 Slight 	 	 Severe Slope/erodibility		 Poorly suited: Slope	 1.00
Urban land	50	 Not rated		 Not rated	 	 Not rated	[
Martinsville	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	 0.50
_							
Urban land	 50	 Not rated		 Not rated	 	 Not rated	
Martinsville	 40 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Strength	 0.50

Table 10b.--Forestland Management--Continued

and soil name	map	or off-trail eros		Hazard of erosic		Suitability for r (natural surfac	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
]					
UhwC: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Martinsville	 40 	 Slight 	 	 Moderate: Slope/erodibility		Moderately suited: Strength Slope	0.50
UkaA:	 	 	1	l I	 	 	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Maumee	40 	Slight 	 	Slight 	 	Poorly suited: Ponding Wetness	 1.00 1.00
UkeA:	 				 	 	
Urban land	50	Not rated	i I	Not rated	 	Not rated	j I
Milford	4 0 	Slight 	 	Slight 	 	Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
UkxA: Urban land	 50	 Not rated 	 	 Not rated	 	 Not rated 	
Oshtemo	 40 	 Slight 		 Slight 	 	 Well suited 	
UkxB: Urban land	 50	 Not rated		 Not rated	 	 Not rated	
Oshtemo	į	į	į	 Slight	 	 Well suited	
			İ				
UkxC: Urban land	 50	 Not rated		Not rated	 	 Not rated	
Oshtemo	 40 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Slope	0.50
UmfB:	 	 		 		 	
Urban land	50 	Not rated 		Not rated 	 	Not rated 	
Riddles	25	Slight 		Moderate: Slope/erodibility		Well suited	
Metea	 15	 Slight 	 	 Slight 	 	 Well suited	
UmfC:	 				 	 	
Urban land	50 	Not rated	j I	Not rated	 	Not rated	i I
Riddles	25	Slight	į Į	 Moderate: Slope/erodibility		Moderately suited:	0.50
Metea	 15 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Slope 	 0.50
UmfD:				 			
Urban land	50 	Not rated 		Not rated	 	Not rated	
Riddles	25	Slight		 Severe Slope/erodibility		Poorly suited:	1.00

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map			Hazard of erosic		Suitability for r (natural surface	
	unit	'	Value	Rating class and	Value	Rating class and	Value
		limiting features		limiting features		limiting features	
UmfD: Metea	 15 	 Slight 	 	 Moderate: Slope/erodibility	 0.50	 Poorly suited: Slope	
UmpA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Schoolcraft	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	 0.50
UmuA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Southwest	 40 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00
						Screngen	
UmwA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tracy	40	Slight	İ	 Slight		 Well suited	i
UmwB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tracy	 40 	 Slight 	 	 Moderate: Slope/erodibility		 Well suited 	
UmwC:	 	 	 	 	 	 	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Tracy	40 	Slight 	 	Moderate: Slope/erodibility		Moderately suited: Slope	 0.50
UmwD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated 	
Tracy	40	 Slight 		 Severe Slope/erodibility		Poorly suited: Slope	1.00
UmxA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Troxel	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	 0.50
UnoA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Whitaker	 40 	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	 0.50
UnqB: Urban land	 50	 Not rated	 	 Not rated	 	Strength Not rated	
Williamstown	į	į	į	Moderate: Slope/erodibility	i I	 Moderately suited:	0.50

Table 10b.--Forestland Management--Continued

and soil name	Pct. of map	or off-trail eros		Hazard of erosic		Suitability for r	
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UnqB: Crosier	 15 	 Slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Wetness Strength	 0.50 0.50
UntA: Urban land	50	 Not rated		 Not rated		 Not rated	
Wunabuna, drained	 40 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
Usl: Udorthents, rubbish-	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
W: Water	 100	 Not rated		 Not rated	 	 Not rated	
WcnAI: Waterford	 80 	 Slight 		 Slight 	 	 Poorly suited: Flooding Wetness Strength	 1.00 0.50 0.50
WoaA: Williamstown	 85 	 Slight 	 	 Slight 	 	 Moderately suited: Strength	0.50
WoaB2: Williamstown	 85 	 slight 	 	 Moderate: Slope/erodibility 		 Moderately suited: Strength	 0.50
WoaC2: Williamstown	 80 	 Slight 	 	 Moderate: Slope/erodibility	'	 Moderately suited: Strength Slope	 0.50 0.50
WobB: Williamstown	 50 	 Slight 	 	 Moderate: Slope/erodibility		 Moderately suited: Strength	
Crosier	30	 Slight 		 Moderate: Slope/erodibility 		Moderately suited: Wetness Strength	0.50
WrxAN: Wunabuna, drained	 85 	 Slight 	 	 Slight 	 	 Poorly suited: Ponding Wetness Strength	 1.00 1.00 0.50
WtbA: Whitaker	75 75	 Slight 	 	 Slight 	 	 Moderately suited: Wetness Strength	0.50
WujB: Williamstown	 45 	 Slight 		 Moderate: Slope/erodibility		 Moderately suited: Strength	
Moon	40	 Slight		 Slight	 	 Well suited	

Table 10c.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

	 Pct. of			 Suitability fo mechanical plant		 Suitability for use of harvesting equipment		
	map			<u> </u>	<u> </u>			
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
AahAK: Abscota	 80	 Well suited		 Well suited	 	 Well suited	 	
AatAN: Ackerman, drained	 85 	 Poorly suited: Wetness Sandiness	 0.75 0.50	 Poorly suited: Wetness Sandiness	 0.75 0.50	 Poorly suited: Strength Wetness	1.00	
AbhAN: Adrian, drained	 75 	 Poorly suited: Wetness 	 0.75	 Poorly suited: Wetness 	 0.75	 Poorly suited: Wetness 	 0.75	
AbhAU: Adrian, undrained	 75 	 Poorly suited: Wetness		 Poorly suited: Wetness		 Poorly suited: Wetness	0.75	
ApuAN: Antung, drained	 75 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness	 1.00	
AxvA: Auten	 82 	 Moderately suited: Stickiness 	 0.50	 Moderately suited: Stickiness 	 0.50	 Moderately suited: Strength	0.50	
BaaA: Bainter	 85 	 Well suited 	 	 Well suited 	 	 Well suited 	 	
BaaB: Bainter	 85 	 Well suited 	 	 Well suited 	 	 Well suited 	 	
BaaC2: Bainter	 85 	 Well suited 		 Moderately suited: Slope	 0.50	 Well suited 	 	
BbmA: Baugo	 85 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50	
BmgA: Blount	 85 	 Moderately suited: Stickiness	 0.50	 Moderately suited: Stickiness	 0.50	 Moderately suited: Strength	0.50	
BshA: Brady	90	 Well suited 	 	 Well suited 	i I	 Well suited 	i 	
BsxA: Brems	 50	 Well suited 	 	 Well suited 	 	 Well suited 	 	
Morocco	40	· -	0.50	 Moderately suited: Sandiness 	 0.50	 Well suited 	 	
BteA: Brems	 80 	 Well suited 	 	 Well suited 	 	 Well suited 	 	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	hand planting	r	Suitability for mechanical plant		Suitability for us harvesting equipm	
	unit 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BuuA: Brookston	 80 		 0.50	 Moderately suited: Stickiness	 0.50	 Moderately suited: Strength	0.50
CmbAI: Cohoctah	 75 	 Well suited 	 	 Well suited 	 	 Poorly suited: Wetness Strength	1.00
CnbA: Coloma	 85 	_	 0.50	_		 Moderately suited: Sandiness	 0.50
CnbB: Coloma	 85 	· -	 0.50	 Moderately suited: Sandiness	 0.50	 Moderately suited: Sandiness	0.50
CnbC: Coloma	 85 	· -	 0.50		 0.50 0.50	 Moderately suited: Sandiness	0.50
CnbD: Coloma	 85 	· -	 0.50		 0.50 0.50	 Moderately suited: Sandiness	0.50
CrrA: Coupee	 85 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50
CvdA: Crosier	 85 	_	:	_	 0.50	_	 0.50
CvdB: Crosier	 80 	· -	:		 0.50	 Moderately suited: Strength	0.50
CwkA: Crumstown	 80	 Well suited 	 	 Well suited 	 	 Well suited	
CwkB: Crumstown	80	 Well suited 	 	 Well suited 	 	 Well suited	
DcrA: Del Rey	 85 		 0.50	 Moderately suited: Stickiness 	 0.50 	 Moderately suited: Strength	 0.50
EchAN: Edwards, drained	 80 	_	 0.75 	 Poorly suited: Wetness	 0.75	Poorly suited: Wetness Strength	0.75
EchAU: Edwards, undrained	75 75	_	 0.75 	 Poorly suited: Wetness	 0.75 	 Poorly suited: Wetness Strength	0.75

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map unit	hand planting		Suitability fo mechanical plant		Suitability for us harvesting equipm 	
	 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EcrAN: Edselton, drained	 70 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness Strength	 1.00 0.50
EcrAU: Edselton, undrained-	 70 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness Strength	 1.00 0.50
EmeA: Elston	 85 	 Well suited 	 	 Well suited 	 	 Well suited 	
GczA: Gilford	 75 	 Well suited 	 	 Well suited	 	 Well suited 	i
GdnA: Gilford	 75	 Well suited 	 	 Well suited		 Well suited	
HfbAN: Henrietta, drained	 80	 Well suited		 Well suited		 Well suited	
HfbAU: Henrietta, undrained	 75 		 0.75	 - Poorly suited: Wetness	 0.75	 Poorly suited: Wetness	0.75
HkkA: Hillsdale	 80	 Well suited		 Well suited		 Well suited	
HkkB: Hillsdale	 80	 Well suited		 Well suited		 Well suited	
HknC2: Hillsdale	 55 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
Oshtemo	 30 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
HknD2: Hillsdale	 55 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
Oshtemo	 30 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
HkpC2: Hillsdale	 55 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited	
Tracy	 30 	 Well suited 	 	 Moderately suited: Slope	0.50	 Well suited 	
HkpD2: Hillsdale	 55 	 Well suited 	 	 Moderately suited: Slope	 0.50		
Tracy	30	 Well suited 	 	 Moderately suited: Slope 	0.50	 Well suited 	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	hand planting	r	Suitability fo		 Suitability for us harvesting equipm	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
HtbAN: Houghton, drained	 75 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness	 0.75
HtbAU: Houghton, undrained-	 75 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness	 0.75
JaaAK: Jamestown	 80 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
MfaA: Martinsville	 70 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
MfaB2: Martinsville	 70 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
MfaC2: Martinsville	 80 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Moderately suited: Strength	 0.50
MfrAN: Madaus, drained	 80 	· -	 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness Strength	 0.75 0.50
MfrAU: Madaus, undrained	 75 	· -	 0.75 	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness Strength	 1.00 0.50
MgcA: Maumee	 80 	 Well suited 	 	 Well suited 	 	 Well suited 	
MgdAN: Martisco, drained	 75 		 0.75 	 Poorly suited: Wetness	 0.75 	 Poorly suited: Wetness Strength	 1.00 0.50
MhaA: Maumee	 80 	 Well suited	 	 Well suited 	 	 Poorly suited: Wetness	 1.00
MhbA: Maumee	 90 	 Well suited 	 	 Well suited 	 	 Poorly suited: Wetness	 1.00
MmbC2: Miami	 80 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Moderately suited: Strength	 0.50
MmdC3: Miami	 80 	 Well suited 	 	 Moderately suited: Slope 	 0.50	 Moderately suited: Strength	 0.50
MmdD3: Miami	 80 	 Well suited 	 	 Moderately suited: Slope 	 0.50	 Moderately suited: Strength	 0.50

Table 10c.--Forestland Management--Continued

		1		I.		1	
and soil name	Pct. of map	hand planting		Suitability fo mechanical plant		 Suitability for us harvesting equipm 	
	unit						
	İ	Rating class and	Value	Rating class and	Value	Rating class and	Value
		limiting features		limiting features		limiting features	
MouA: Milford	 85 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
MsaA: Mishawaka	 95	 Well suited 	 	 Well suited 	 	 Well suited	
MtsB2: Morley	 75 				 0.50		 0.50
MtsC2: Morley	 80 		 0.50		 0.50 0.50	-	 0.50
MubD3: Morley	 80 	-	 0.50		 0.50 0.50		
MvhAN: Moston, drained	 80 	-		 Poorly suited: Wetness		 Poorly suited: Strength Wetness	 1.00 1.00
MvhAU: Moston, undrained	 75 		:	 Poorly suited: Wetness	 0.75	 Poorly suited: Strength Wetness	 1.00 1.00
MvkA: Morocco	 85 			 Moderately suited: Sandiness 	 0.50	 Well suited 	
MwzAN: Muskego, drained	75 			 Poorly suited: Wetness	 0.75	 Poorly suited: Strength Wetness	 1.00 0.75
MwzAU: Muskego, undrained	 70 			 Poorly suited: Wetness	 0.75 	 Poorly suited: Strength Wetness	 1.00 0.75
OkrA:	 80	 Well suited 	 	 Well suited 	 	 Well suited 	
OkrB: Oshtemo	 80	 Well suited 	 	 Well suited 	 	 Well suited 	
OkrC2: Oshtemo	 80 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
OkrD: Oshtemo	 80 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
OlcA: Oshtemo	 80 	 Well suited 	 	 Well suited 	 	 Well suited 	

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map	hand planting		Suitability fo mechanical plant		Suitability for us harvesting equipm	
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OlcB: Oshtemo	 80	 Well suited 	 	 Well suited 	 	 Well suited 	
OlcC2: Oshtemo	80	 Well suited 	 	 Moderately suited: Slope	0.50	 Well suited 	
OlcD: Oshtemo	 80 	 Well suited 	 	 Moderately suited: Slope 	 0.50	 Well suited 	
OmgA:	85	 Well suited 	 	 Well suited 	: 	 Well suited 	
PaaAN: Palms, drained	 80 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
PaaAU: Palms, undrained	 75 		 0.75	 Poorly suited: Wetness	 0.75	 Poorly suited: Wetness Strength	 0.75 0.50
Pmg: Pits, gravel	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
Px1A: Psammaquents	 85 	 Not rated 	 	 Not rated 	 	 Not rated 	
Pxo: Psamments	85	 Not rated	i 	 Not rated	 	 Not rated	
QuiA: Quinn	 80 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength 	 0.50
QujA: Quinn	 75 	 Well suited 	 	 Well suited 	: 	 Well suited 	
RenA: Rensselaer	 85 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
ReyA: Rensselaer	 75 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength 	 0.50
RopA: Riddles	 50 	 Well suited 	; 	 Well suited 	 	 Well suited 	
Oshtemo	35	Well suited		Well suited		Well suited	
RopB:	50	 Well suited 	 	 Well suited 	 	 Well suited 	
Oshtemo	35	Well suited	i I	 Well suited 	i I	 Well suited 	

Table 10c.--Forestland Management--Continued

and soil name	 Pct. of map unit	hand planting	Suitability fo mechanical plant		Suitability for use of harvesting equipment		
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RopC2: Riddles	 50 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
Oshtemo	 35 	 Well suited 	 	 Moderately suited: Slope	 0.50		
RopD2: Riddles	 50 	 Well suited 	 	 Moderately suited: Slope	 0.50		
Oshtemo	 35 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
RoqB:	 55	 Well suited 		 Well suited 	 	 Well suited 	
Metea	30		 0.50	 Moderately suited: Sandiness	 0.50	 Well suited 	
RoqC2: Riddles	 55 	 Well suited 	 	 Moderately suited: Slope	0.50	 Well suited	
Metea	 30 	_	 0.50 	Slope	 0.50 0.50		
RoqD2: Riddles	 50	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
Metea	 30 	_	:	Slope	 0.50 0.50	 Well suited 	
SdzA: Selfridge	 50	 Well suited 	 	 Well suited 	 	 Well suited 	
Crosier	35		 0.50	 Moderately suited: Stickiness	 0.50	 Moderately suited: Strength	 0.50
SdzaB: Selfridge	 50	 Well suited 	 	 Well suited 	 	 Well suited 	
Brems	35	 Well suited 	 	 Well suited 		 Well suited 	
SesA: Schoolcraft	 80 	 Well suited 	 	 Well suited 		 Moderately suited: Strength	0.50
SnlA: Southwest	 75 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
TmpA:	80	 Well suited 	 	 Well suited 	 	 Well suited 	
TmpB: Tracy	 80 	 Well suited 	 	 Well suited 	 	 Well suited 	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	hand planting		Suitability fo mechanical plant	Suitability for us harvesting equipm 		
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
TmpC2:	 80 	 Well suited	 	 Moderately suited: Slope	 0.50	 Well suited 	
TmpD: Tracy	 80 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
TnwA: Troxel	 80 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
TxuA: Tyner	 85 	 Well suited 	 	 Well suited 	 	 Well suited 	
TxuB: Tyner	 85 	 Well suited 	 	 Well suited 	 	 Well suited 	
TxuC: Tyner	 85 	 Well suited	 	 Moderately suited: Slope	 0.50	 Well suited 	
TxuD: Tyner	 85 	 Well suited	 	 Moderately suited: Slope	 0.50	 Well suited 	
TxuF: Tyner	 80 	 Well suited 	 	 Unsuited: Slope	 1.00	 Moderately suited: Slope	 0.50
Uam: Udorthents, loamy	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
UdeA: Urban land	 50	Not rated	 	Not rated	 	 Not rated	
Bainter	40	 Well suited	 	 Well suited		 Well suited	
UdeB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Bainter	40	 Well suited 	 	 Well suited 	 	 Well suited 	
UdeC: Urban land	 50	 Not rated 	 	 Not rated 		 Not rated	
Bainter	40	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
UdkA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Brady	40 	Well suited	 	Well suited	 	Well suited	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	hand planting		Suitability fo		Suitability for us harvesting equipm 	
	unit 	'		 Rating class and limiting features		 Rating class and limiting features	Value
UdzA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Auten	 40 			 Moderately suited: Stickiness			0.50
UeaA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Crosier	 40 			 Moderately suited: Stickiness		 Moderately suited: Strength	0.50
UeqA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Gilford	 40 	 Well suited 	 	 Well suited 	 	 Well suited 	
UewA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Brems	25	Well suited	į	Well suited	İ	Well suited	į
Morocco	 15 	-		 Moderately suited: Sandiness	0.50	 Well suited 	
UfbA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Brookston	 40 			 Moderately suited: Stickiness			0.50
UfhA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Coloma	 40 			 Moderately suited: Sandiness	:	 Moderately suited: Sandiness	0.50
UfhB: Urban land	 50	 Not rated		 Not rated	 	 Not rated	
Coloma	 40 	 Moderately suited: Sandiness	0.50	 Moderately suited: Sandiness	0.50	 Moderately suited: Sandiness	0.50
UfhC: Urban land	 50	 Not rated		 Not rated		 Not rated	
Coloma	 40 	. –		 Moderately suited: Slope Sandiness	 0.50 0.50	:	0.50
UfmA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Coupee	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50
UfrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Del Rey	 40 	-		 Moderately suited: Stickiness	 0.50	 Moderately suited: Strength	0.50

Table 10c.--Forestland Management--Continued

and soil name	Pct.	hand planting		Suitability fo		Suitability for us harvesting equipm	
	map unit			 		 	
		'		Rating class and limiting features		Rating class and limiting features	
UftA: Urban land	 50 	 Not rated	 	 Not rated	 	 Not rated	
Elston	 40 	 Well suited 	 	 Well suited 	 	 Well suited 	
UfzA:					ĺ		i
Urban land	50	Not rated	 	Not rated	i I	Not rated	j I
Mishawaka	45	 Well suited 	 	Well suited	j I	Well suited	j I
UgaA:	İ		İ		į		į
Urban land	50 	Not rated	 	Not rated 		Not rated 	
Morocco	40	_	 0.50	Moderately suited: Sandiness	0.50	Well suited 	
UglA:					ĺ		i
Urban land	50	Not rated	 	Not rated	i I	Not rated	j I
Osolo	40	Well suited	 	Well suited	į I	Well suited	į I
UgrA:					İ		i
Urban land	50	Not rated	 	Not rated	i I	Not rated	j I
Rensselaer	40	 Well suited 	 	Well suited	 	Moderately suited:	0.50
UgsA:		 	 	[İ	[i
Urban land	50	Not rated	 	Not rated	į į	Not rated	
Riddles	25	 Well suited	 	 Well suited		 Well suited	
Oshtemo	15	 Well suited	 	 Well suited		 Well suited	
UgsB:	 		 	 		 	
Urban land	50	Not rated	 	Not rated	į	Not rated	
Riddles	25	 Well suited	 	 Well suited		 Well suited	
Oshtemo	 15	 Well suited	 	 Well suited		 Well suited	
UgvA:	 	 	 	 		 	
Urban land	50	 Not rated	 	 Not rated		 Not rated	
Tyner	 40	 Well suited	 	 Well suited	 	 Well suited	
UgvB:	 		 	 	1	 	
Urban land	 50	 Not rated	 	 Not rated 		 Not rated 	
Tyner	40	 Well suited	 	 Well suited 		 Well suited 	
UgvC:	 	[
Urban land	50	 Not rated 	 	 Not rated 		 Not rated 	i i
Tyner	40	 Well suited 		 Moderately suited: Slope	0.50	 Well suited 	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	hand planting		Suitability fo		Suitability for us harvesting equipm	
	unit 	'	Value	 Rating class and limiting features		 Rating class and limiting features	Value
UgvD:	 	 		 		 	
Urban land	 50	 Not rated		 Not rated		 Not rated	
Tyner	40	 Well suited 		Moderately suited: Slope	0.50	 Well suited 	
UhmA:	l I	 	 	 	 	 	1
Urban land	 50 	 Not rated	 	 Not rated 		 Not rated	
Hillsdale	40	 Well suited		 Well suited		 Well suited	
UhmB:	l I	 	 	 	 	 	
Urban land	50	 Not rated	 	Not rated	į	 Not rated	į
Hillsdale	40	 Well suited		 Well suited		 Well suited	
UhoC:	 			 			
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Hillsdale	30	 Well suited 		Moderately suited: Slope	0.50	 Well suited 	
Oshtemo	 15 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
UhoD:	 			 			
Urban land	50	Not rated	į į	Not rated	į į	Not rated	į
Hillsdale	30	Well suited		Moderately suited:	0.50	 Well suited 	
Oshtemo	 15 	 Well suited 	 	 Moderately suited: Slope	 0.50		
UhpC:	 			 			
Urban land	50	Not rated	 	Not rated	 	Not rated	
Hillsdale	30	Well suited	į Į	Moderately suited:	0.50	Well suited	į
Tracy	 15 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
IIban D.						l	
Urban land	50	 Not rated		 Not rated		 Not rated	
Hillsdale	 30	 Well suited		 Moderately suited:		 Well suited	
	 	 	 	Slope 	0.50	[
Tracy	15	Well suited	į Į	Moderately suited: Slope	0.50	'	į
UhwA:	 	 	 	 	 	 	I I
Urban land	50	Not rated		 Not rated		 Not rated	
Martinsville	40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map unit	hand planting		Suitability for mechanical plant		Suitability for use of harvesting equipment	
	 	'		Rating class and limiting features	Value	Rating class and limiting features	Value
UhwB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Martinsville	40	 Well suited 		 Well suited 	 	 Moderately suited: Strength	0.50
UhwC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Martinsville	40	 Well suited 	 	 Moderately suited: Slope	0.50	 Moderately suited: Strength	0.50
UkaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Maumee	40	 Well suited		 Well suited		 Well suited	
UkeA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Milford	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50
UkxA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Oshtemo	40	 Well suited		 Well suited		 Well suited	
UkxB: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Oshtemo	 40 	 Well suited 	 	 Well suited 	 	 Well suited 	
UkxC: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	
Oshtemo	40	 Well suited 		 Moderately suited: Slope	0.50	 Well suited 	
UmfB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	25	 Well suited		 Well suited		 Well suited	
Metea	 15 	-	 0.50	 Moderately suited: Sandiness	 0.50	 Well suited 	
UmfC: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	
Riddles	25	 Well suited 	 	 Moderately suited: Slope	0.50	 Well suited 	
Metea	 15 		 0.50	: -	0.50	 Well suited 	

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map unit	hand planting		Suitability fo		Suitability for us harvesting equipm 	
	unit	'	Value	Rating class and limiting features		Rating class and limiting features	Value
UmfD: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Riddles	 25 	 Well suited 		 Moderately suited: Slope	 0.50	 Well suited 	
Metea	 15 	<u>-</u>	 0.50	<u>-</u>	 0.50 0.50	 Well suited 	
UmpA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Schoolcraft	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50
UmuA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Southwest	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	0.50
UmwA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tracy	 40 	 Well suited 	 	 Well suited 	 	 Well suited 	
UmwB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tracy	40	 Well suited 	 	 Well suited 	 	 Well suited 	
UmwC: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tracy	 40 	 Well suited 		 Moderately suited: Slope	0.50	 Well suited 	
UmwD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tracy	 40 	 Well suited 	 	 Moderately suited: Slope	 0.50	 Well suited 	
UmxA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Troxel	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
UnoA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Whitaker	 40 	 Well suited 	 	 Well suited 	 	 Moderately suited: Strength	 0.50
UnqB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Williamstown	 25	 Well suited	 	 Well suited	 	 Moderately suited: Strength	 0.50

Table 10c.--Forestland Management--Continued

and soil name	Pct. of map	-	- '		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value	
UnqB: Crosier	 15 	_	 0.50	 Moderately suited: Stickiness 	 0.50	 Moderately suited: Strength 	 0.50	
UntA: Urban land	 50	Not rated	 	 Not rated	!	 Not rated		
Wunabuna, drained	 40 	Well suited	 	 Well suited 	 	 Moderately suited: Strength	0.50	
Usl: Udorthents, rubbish-	 100 	Not rated	 	 Not rated 	 	 Not rated 	 	
W: Water	 100	Not rated	 	 Not rated		 Not rated		
WcnAI: Waterford	 80 	Well suited	 	 Well suited 		 Moderately suited: Strength	0.50	
WoaA: Williamstown	 85 	Well suited	 	 Well suited 	 	 Moderately suited: Strength	 0.50	
WoaB2: Williamstown	 85 	Well suited	 	 Well suited 	 	 Moderately suited: Strength		
WoaC2: Williamstown	 80 	Well suited	 	 Moderately suited: Slope	 0.50	 Moderately suited: Strength	 0.50	
WobB: Williamstown	 50 	Well suited	 	 Well suited 	 	 Moderately suited: Strength	 0.50	
Crosier	 30 	-	 0.50	 Moderately suited: Stickiness	 0.50	 Moderately suited: Strength	0.50	
WrxAN: Wunabuna, drained	 85 	Well suited	 	 Well suited 	 	 Moderately suited: Strength	0.50	
WtbA: Whitaker	 75 	Well suited	 	 Well suited 	 	 Moderately suited: Strength		
WujB: Williamstown	 45 	Well suited	 	 Well suited 	 	 Moderately suited: Strength	 0.50	
Moon	 40 	_	 0.50	 Moderately suited: Sandiness	 0.50	 Well suited 		

Table 10d.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

	Pct.	'	
		seedling mortali	ty
	map unit	 	
	unic	'	1 77 - 7
		Rating class and limiting features	Value
AahAK:	 	 	
Abscota	80	Low	į
AatAN:	 	 	1
Ackerman, drained	85	 High:	i
	İ	Wetness	1.00
		Lime	0.50
AbhAN:	 		
Adrian, drained	75	High:	İ
		Wetness	1.00
		Soil reaction	1.00
	 	Lime	0.50
AbhAU:			
Adrian, undrained	75	High:	
		Wetness	1.00
		Soil reaction	1.00
	 	Lime	0.50
ApuAN:			
Antung, drained	75	High:	
		Wetness	1.00
		Soil reaction	1.00
	 	Lime 	0.50
AxvA:	İ		į
Auten	82	High:	
	 	Wetness	1.00
BaaA:	İ		į
Bainter	85	Low	
BaaB:			
Bainter	85	Low	
BaaC2:			
Bainter	85	Low	
BbmA:		[
Baugo	85	Moderate:	İ
		Wetness	0.50
BmgA:	 	 	
Blount	85	Moderate:	
		Wetness	0.50
BshA:	 	[
		•	:
Brady	90	High:	

Table 10d.--Forestland Management--Continued

Map symbol	Pct.	Potential for	
		seedling mortali	
una 2011 numo	map	500022119 11020022	<i>-1</i>
	unit		
		'	Value
	1	limiting features	
	l	IIMICING Teacures	1
BsxA:	1	 	1
Brems	50	Low	i
DI CIND	30	104	i
Morocco	40	 High:	i
11020000	=0	Wetness	1.00
	i		
	i	İ	i
BteA:	İ	İ	i
Brems	80	Low	İ
	ĺ		ĺ
BuuA:			
Brookston	80	High:	
		Wetness	1.00
CmbAI:			
Cohoctah	75	High:	
		Wetness	1.00
CnbA:			
Coloma	85	Low	
CnbB:	1	 	1
Coloma	 85	Low	1
COTOMa	03	HOW	1
CnbC:	1	 	i
Coloma	85	Low	i
00201114			İ
CnbD:	i	' 	i
Coloma	85	Low	i
	İ	İ	İ
CrrA:	ĺ		ĺ
Coupee	85	Low	
CvdA:			
Crosier	85	Moderate:	
		Wetness	0.50
CvdB:			
Crosier	80	Moderate:	
		Wetness	0.50
Chala A	1	 	1
CwkA: Crumstown	80		1
CI ullis cowii	80	I TOW	1
CwkB:	i	! 	
Crumstown	80	Low	
			İ
DcrA:	i		i
Del Rey	85	Moderate:	İ
_	İ	Wetness	0.50
	İ		
EchAN:			
Edwards, drained	80	High:	
		Wetness	1.00
		Lime	1.00
		Soil reaction	0.50

Table 10d.--Forestland Management--Continued

Man symbol	 Pct.	Potential for		
		seedling mortality		
	map			
	unit			
		Rating class and	Value	
		limiting features	<u> </u>	
EchAU:	 	 	1	
Edwards, undrained	75	 High:	i	
	İ	Wetness	1.00	
		Lime	1.00	
		Soil reaction	0.50	
EcrAN:				
Edselton, drained	70	High:	ĺ	
		Wetness	1.00	
		Lime	1.00	
	 	Soil reaction	0.50	
EcrAU:			i	
Edselton, undrained-	70	High:		
		Wetness	1.00	
		Lime	1.00	
	 	Soil reaction	0.50	
EmeA:	İ		į	
Elston	85	Low		
0		1		
GczA: Gilford	 75	 High:	l I	
0111014		Wetness	1.00	
	i	İ	į	
GdnA:				
Gilford	75	· -	11 00	
	 	Wetness	1.00	
HfbAN:	i		į	
Henrietta, drained	80	High:		
		Wetness	1.00	
HfbAU:	 	 		
Henrietta, undrained	75	High:	i	
		Wetness	1.00	
HkkA:		 		
Hillsdale	80	Low		
	i		į	
HkkB:	!			
Hillsdale	80	Low		
HknC2:			İ	
Hillsdale	55	Low	į	
		[
Oshtemo	30	Low		
HknD2:		 		
Hillsdale	55	Low	į	
		[
Oshtemo	30	Low		
HkpC2:		 		
Hillsdale	55	Low	į	
	!		ļ	
Tracy	30	Low		
	I	I	I	

Table 10d.--Forestland Management--Continued

Man symbol	 Pct.	Detemble 1 for		
		Potential for seedling mortality		
	map			
	unit	•		
		Rating class and	Value	
		limiting features		
HkpD2:		-		
Hillsdale	55	Low	1	
Tracy	30	Low		
•			i	
HtbAN:				
Houghton, drained	75	High:		
		Wetness	1.00	
		Soil reaction	1.00	
HtbAU:	l I	 		
Houghton, undrained-	75	 High:		
	İ	Wetness	1.00	
		Soil reaction	1.00	
JaaAK:				
Jamestown	80	High:		
	 	Wetness	1.00	
MfaA:	l I	 		
Martinsville	70	Low:	i	
	İ	İ	į	
MfaB2:				
Martinsville	70	Low	!	
**5 #0		1		
MfaC2: Martinsville	 80	Low	1	
Mai Cinsville	80	LOW	1	
MfrAN:	i		i	
Madaus, drained	80	High:	i	
		Wetness	1.00	
		Lime	1.00	
		Soil reaction	0.50	
MfrAU:	l I	 	1	
Madaus, undrained	75	 High:		
	İ	Wetness	1.00	
		Lime	1.00	
		Soil reaction	0.50	
MgcA: Maumee	 on	 Ui ah	1	
Madillee	80	Wetness	1.00	
	İ	Weeness		
MgdAN:	İ	İ	i	
Martisco, drained	75	High:	İ	
		Wetness	1.00	
		Lime	1.00	
		Soil reaction	0.50	
MhaA:	I I	 	I	
Maumee	80	 High:	1	
	i	Wetness	1.00	
MhbA:		[1	
Maumee	90	High:		
		Wetness	1.00	
MmbC2:	I I	 	1	
Miami	80	Low		
	İ	İ	i	
		•		

Table 10d.--Forestland Management--Continued

	Pct.	Potential for seedling mortali	tv
	map		cy
	unit	'	
	 	Rating class and limiting features	Value
MmdC3:	 80 	 Low 	
MmdD3: Miami	 80 	 Low	
MouA: Milford	 85 	 High: Wetness 	 1.00
MsaA: Mishawaka	 95 	 Low	
MtsB2: Morley	 75 	 Low 	
MtsC2: Morley	 80 	 Low	
MubD3: Morley	 80 	 Low 	
MvhAN: Moston, drained	 80 	 High: Wetness	1.00
MvhAU: Moston, undrained	 75 	 High: Wetness	 1.00
MvkA: Morocco	 85 	 High: Wetness	1.00
MwzAN: Muskego, drained	 75 	 High: Wetness	 1.00
MwzAU: Muskego, undrained	70	 High: Wetness	1.00
OkrA: Oshtemo	 80 	 Low 	
OkrB: Oshtemo	 80 	 Low 	
OkrC2: Oshtemo	 80 	 Low	
OkrD: Oshtemo	 80 	Low	
OlcA: Oshtemo	 80	Low	
OlcB: Oshtemo	 80 	Low	

Table 10d.--Forestland Management--Continued

	Pct.		
		seedling mortali	ty
	map		
	unit	'	
			Value
		limiting features	<u> </u>
OlcC2:			!
Oshtemo	80	Low	!
01-D		 	
OlcD: Oshtemo		 •	1
Osntemo	80	Low	1
OmgA:	l I	İ	
Osolo	85	Low	i
00010	03	104	i
PaaAN:	i I	 	i
Palms, drained	80	 High:	i
		Wetness	1.00
	İ	Soil reaction	1.00
	İ	İ	i
PaaAU:	i	İ	i
Palms, undrained	75	High:	ĺ
		Wetness	1.00
		Soil reaction	1.00
Pmg:			
Pits, gravel	100	Not rated	
			!
PxlA:			
Psammaquents	85	Not rated	!
_			
Pxo:			
Psamments	85	Not rated	1
QuiA:	l I	İ	
Quinn	80	 High:	i
×41	00	Wetness	1.00
	İ		
QujA:	İ		i
Quinn	75	High:	i
	İ	Wetness	1.00
			ĺ
RenA:			
Rensselaer	85	High:	
		Wetness	1.00
ReyA:			
Rensselaer	75	High:	!
		Wetness	1.00
D3		 	
RopA: Riddles	 50	Low	1
RIGGIES	50	HOW	1
Oshtemo	35	Low	i
OBITECINO	33	104	i
RopB:	i	 	
Riddles	50	Low	i
	İ		İ
Oshtemo	35	Low	İ
	İ		
RopC2:			
Riddles	50	Low	
Oshtemo	35	Low	

Table 10d.--Forestland Management--Continued

and soil name	map	seedling mortality		
	unit 	Rating class and limiting features	Valu	
RopD2:	 	 		
Riddles	 50 	 Low 	 	
Oshtemo	35 	Low	İ	
RoqB:	i		i	
Riddles	55	Low	 	
Metea	30	Low	İ İ	
RoqC2:	i		į	
Riddles	55 	Low	 	
Metea	30	Low	 	
RoqD2:	İ		į	
Riddles	50 	Low 		
Metea	30	Low	į I	
SdzA:			İ	
Selfridge	50 	Low	 	
Crosier	35	Moderate: Wetness	0.50	
SdzaB: Selfridge				
Brems	İ	Low	į	
DI CIND	33		i	
SesA: Schoolcraft	80	Low	j I	
SnlA:	 	 		
Southwest	 75	 High:		
	 	Wetness	1.00	
TmpA:	į		į	
Tracy	80 	Low 		
TmpB:	İ		İ	
Tracy	80 	Low		
TmpC2:	i		İ	
Tracy	80 	Low		
TmpD:			ļ	
Tracy	80 	Low 		
TnwA: Troxel	 80	Low		
		 -	İ	
TxuA: Tyner	 85	Low		
TxuB:	 	 		
Tyner	95	Low	1	

Table 10d.--Forestland Management--Continued

		seedling mortali	
	map		
	unit	'	1
	 	Rating class and limiting features	Value
	i		İ
TxuC: Tyner	85	 Low	
TxuD: Tyner	85	 Low	
TxuF: Tyner	80	 Low	
Uam: Udorthents, loamy	100	 Not rated 	
UdeA: Urban land	50	 Not rated 	
Bainter	40	Low	
UdeB: Urban land	50	 Not rated	
Bainter	40	Low	
UdeC: Urban land	 50	 Not rated	
Bainter	40	Low	
UdkA: Urban land	 50	 Not rated	
Brady	 40 	 High: Wetness	 1.00
UdzA: Urban land	 50	 Not rated	
Auten	40	High: Wetness	1.00
UeaA: Urban land	 50	 Not rated	
Crosier	40	Moderate: Wetness	0.50
UeqA: Urban land	 50	 Not rated 	
Gilford	40	 High: Wetness 	1.00
UewA: Urban land	50	 Not rated 	
Brems	25	Low	
Morocco	15	 High: Wetness	 1.00

Table 10d.--Forestland Management--Continued

Man gumbol	 Dat	Dotontial for		
Map symbol and soil name	Pct.	Potential for seedling mortality		
did boll iddio	map			
	unit	i 		
		Rating class and	Value	
	<u> </u>	limiting features	<u> </u>	
UfbA:		 -		
Urban land	 - 50	 Not rated		
Brookston	- 40	High:	i	
		Wetness	1.00	
TT.51-3				
UfhA: Urban land	 - 50	 Not rated		
	i		i	
Coloma	- 40	Low		
UfhB: Urban land	 - 50	 Not rated		
orban land	50			
Coloma	- 40	Low	i	
UfhC:				
Urban land	- 50 	Not rated 		
Coloma	- 40	Low		
	İ	İ	İ	
UfmA:				
Urban land	- 50	Not rated		
Coupee	 - 40	Low		
	i		i	
UfrA:	ĺ	ĺ		
Urban land	- 50	Not rated		
Del Rey	 - 40	 Moderate:		
		Wetness	0.50	
UftA:				
Urban land	- 50 	Not rated		
Elston	- 40	Low		
	ĺ	ĺ	İ	
UfzA:				
Urban land	- 50	Not rated		
Mishawaka	 - 45	Low		
	i		i	
UgaA:				
Urban land	- 50	Not rated		
Morocco	 - 40	 High:		
	20	Wetness	1.00	
	İ	İ	İ	
UglA:				
Urban land	- 50	Not rated		
Osolo	 - 40	Low		
			İ	
UgrA:				
Urban land	- 50	Not rated		
Rensselaer	 _ 40	 High:	 	
	10	Wetness	1.00	
	1	:	1 11	

Table 10d.--Forestland Management--Continued

and soil name	 Pct. of map	Potential for seedling mortality
	unit	· ————
	 	Rating class and Value limiting features
II		
UgsA: Urban land	 50 	 Not rated
Riddles	25	Low
Oshtemo	 15 	 Low
UgsB: Urban land	 50	 Not rated
	į	į
Riddles	25 	Low
Oshtemo	15 	Low
UgvA: Urban land	50	 Not rated
Tyner	 40 	 Low
UgvB: Urban land	 50	 Not rated
Tyner	 40 	 Low
UgvC: Urban land	 50	 Not rated
Tyner	40	Low
UgvD: Urban land	 50	 Not rated
Tyner	40	Low
UhmA: Urban land	 50	 Not rated
Hillsdale	40	Low
UhmB: Urban land	 50	 Not rated
Hillsdale	 40	Low
UhoC: Urban land	 50	 Not rated
Hillsdale	 30	 Low
Oshtemo	 15	Low
UhoD: Urban land	 50	
Hillsdale	30	Low
Oshtemo	 15 	 Low

Table 10d.--Forestland Management--Continued

		1	
	Pct.	•	
		seedling mortali	сy
	map	 	
	unit	'	1 7
		Rating class and	value
		limiting features	<u> </u>
UhpC:	l I	 	l I
Urban land	 50	 Not rated	l I
orban rana	30		
Hillsdale	30	Low	İ
			İ
Tracy	15	Low	İ
		İ	Ì
UhpD:			
Urban land	50	Not rated	
Hillsdale	30	Low	
_			
Tracy	15	Low	
IThera .		 	
UhwA: Urban land	 E0	 Not mated	
ordan rand	50	Not lated	l l
Martinsville	40	Low	
			İ
UhwB:	i	İ	İ
Urban land	50	Not rated	
Martinsville	40	Low	
UhwC:			
Urban land	50	Not rated	
Martinsville	1 40	Low	
Mai cinsville	10	LOW	
UkaA:	İ	 	i
Urban land	50	Not rated	İ
	i	İ	İ
Maumee	40	High:	Ì
		Wetness	1.00
UkeA:			
Urban land	50	Not rated	
Milford		 High:	
MIIIOId	40	Wetness	1.00
	l I	""	1
UkxA:	İ	 	İ
Urban land	50	Not rated	İ
	i	İ	İ
Oshtemo	40	Low	Ì
UkxB:			
Urban land	50	Not rated	
Oshtemo	40	Low	
UkxC:	1	 	
Urban land	 50	 Not_rated	
orban rand	50	Indicated	
Oshtemo	40	Low	
	i	İ	İ
		•	

Table 10d.--Forestland Management--Continued

	Pct.	'	
		seedling mortali	ty
	map unit	 	
		Rating class and	Value
	<u>i </u>	limiting features	<u> </u>
UmfB: Urban land	 50	 Not rated	
ordan land	30	 	
Riddles	25	Low	İ
Water		Low	
Metea	15	Low	
UmfC:	İ		İ
Urban land	50	Not rated	
Riddles	 25	Low	
RIGGICS	23		
Metea	15	Low	
UmfD:		1	
Urban land	50	 Not rated	
	i	İ	İ
Riddles	25	Low	
Metea	 15	Low	
	İ		İ
UmpA:			
Urban land	50 	Not rated	
Schoolcraft	40	Low	
		<u> </u>	
UmuA: Urban land	 50	 Not rated	
012411 14114			
Southwest	40	High:	
	 	Wetness	1.00
UmwA:			
Urban land	50	Not rated	
Tracy		Low	
11acy	40	Low	
UmwB:	İ	İ	İ
Urban land	50	Not rated	
Tracy	40	Low	
-	İ	İ	İ
UmwC:		 	
Urban land	50 	Not rated 	
Tracy	40	Low	İ
UmwD: Urban land	 50	 Not rated	
	i	İ	İ
Tracy	40	Low	
UmxA:	I I	 	
Urban land	50	Not rated	
m			
Troxel	40 	 nom	l I
	1	I	1

Table 10d.--Forestland Management--Continued

	Pct. of map unit	seedling mortali			
		Rating class and limiting features			
UnoA: Urban land	 50	 Not rated 	 		
Whitaker	40	 High: Wetness	1.00		
UnqB: Urban land	50	 Not rated	 		
Williamstown	25	 Low			
Crosier	 15 	 Moderate: Wetness 	 0.50		
UntA: Urban land	50	 Not rated			
Wunabuna, drained	40	 High: Wetness	1.00		
Usl: Udorthents, rubbish-	 100	 Not rated 	 		
W: Water	100	 Not rated 	 		
WcnAI: Waterford	80	 High: Wetness	1.00		
WoaA: Williamstown	 85	 - Low			
WoaB2: Williamstown	85	 Low			
WoaC2: Williamstown	80	 Low			
WobB: Williamstown	50	 Low			
Crosier	30	 Moderate: Wetness	0.50		
WrxAN: Wunabuna, drained	 85 	 High: Wetness	1.00		
WtbA: Whitaker	 75 	 High: Wetness			
WujB: Williamstown	 45	 Low			
Moon	40	 Low			

Table 11a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

	Pct.			Picnic areas		Playgrounds	
	of map	į		[[
	unit 	 Rating class and	Value	Rating class and	Value	Rating class and	Value
		limiting features		limiting features		limiting features	
- 1							
AahAK:			1	 Companies limited:	1	 Companies Limited.	1
Abscota	00	Flooding	1.00	Somewhat limited: Too sandy	0.50	Somewhat limited: Flooding	0.60
	 	Too sandy	0.50	100 sandy 		Too sandy	0.50
							ļ
AatAN: Ackerman, drained	 85	 Verv limited:		 Very limited:		 Very limited:	
iioiioziiiaii, azaziioa		Depth to	1.00	: -	1.00	· -	1.00
		saturated zone		Depth to	1.00	saturated zone	
		Ponding	1.00	saturated zone		Ponding	1.00
i		Restricted	0.96	Restricted	0.96	Restricted	0.96
		permeability	į	permeability	į	permeability	į
AbhAN:	 	 		 		 	1
Adrian, drained	75	Very limited:	i	 Very limited:	i	 Very limited:	i
		Depth to	1.00	Ponding	1.00	Depth to	1.00
		saturated zone		Depth to	1.00	saturated zone	
		Ponding	1.00	saturated zone		Ponding	1.00
AbhAU:	 						
Adrian, undrained	75	Very limited:	İ	Very limited:	İ	Very limited:	İ
I		Depth to	1.00	Ponding	1.00	Depth to	1.00
I		saturated zone		Depth to	1.00	saturated zone	
		Ponding	1.00	saturated zone		Content of	1.00
		Content of	1.00	Content of	1.00	organic matter	
	 	organic matter		organic matter		Ponding	1.00
ApuAN:			İ		İ		i
Antung, drained	75	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Ponding	1.00	Depth to	1.00
		saturated zone		Depth to	1.00	saturated zone	
	 	Ponding	1.00	saturated zone		Ponding	1.00
AxvA:		İ	İ		İ		İ
Auten	82	Very limited:		Very limited:		Very limited:	
		Depth to	1.00		1.00		1.00
	 	saturated zone		saturated zone		saturated zone	
BaaA:		İ	İ	İ	İ	İ	İ
Bainter	85	Not limited		Not limited		Not limited	
BaaB:			İ		İ		İ
Bainter	85	Not limited		Not limited		Somewhat limited:	
	 	 		 		Slope	0.12
BaaC2:				 		 	
Bainter	85	Not limited		Not limited		Very limited:	
		 		 		Slope	1.00
				I .	1	I .	1
BbmA:	 		i	İ	İ	İ	
BbmA:	 85	 Very limited:	į I	Very limited:		Very limited:	
BbmA: Baugo	 85 	 Very limited: Depth to	 1.00		 1.00		 1.00

Table 11a.--Recreation--Continued

and soil name	Pct. of map unit	- 		Picnic areas 	 Playgrounds 		
		Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BmgA: Blount	 85 	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.96	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.96	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.96
BshA: Brady	 90 	Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	Very limited: Depth to saturated zone Gravel content	 1.00 0.04
BsxA: Brems	 50	 Somewhat limited: Too sandy	0.59	 Somewhat limited: Too sandy	0.59	 Somewhat limited: Too sandy	 0.59
Morocco	 40 	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88
BteA: Brems	 80 	 Somewhat limited: Too sandy	0.59	 Somewhat limited: Too sandy	0.59	 Somewhat limited: Too sandy	0.59
BuuA: Brookston	 80 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	Very limited: Ponding Depth to saturated zone	 1.00 1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00
CmbAI: Cohoctah	 75 	Very limited: Depth to saturated zone Flooding	 1.00 1.00	saturated zone	1.00	Very limited: Depth to saturated zone Flooding	 1.00 1.00
CnbA: Coloma	 85 	 Very limited: Too sandy		 Very limited: Too sandy	1.00	 Very limited: Too sandy	1.00
CnbB: Coloma	 85 		 1.00	 Very limited: Too sandy 	 1.00	 Very limited: Too sandy Slope	 1.00 0.50
CnbC: Coloma	 85 	 Very limited: Too sandy	 1.00	 Very limited: Too sandy		 Very limited: Too sandy Slope	 1.00 1.00
CnbD: Coloma	 85 		 1.00 0.96	· -	 1.00 0.96	 Very limited: Slope Too sandy	 1.00 1.00
CrrA:	 85 	 Not limited 	 	 Not limited 	 	 Not limited 	

Table 11a.--Recreation--Continued

Map symbol and soil name	 Pct. of	 Camp areas 		Picnic areas		 Playgrounds 	
	 map unit	i I		 		 -	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CvdA: Crosier	 85	 Very limited:		 Very limited:		 Very limited:	
	[Depth to saturated zone	1.00 	Depth to saturated zone	1.00 	Depth to saturated zone	1.00
	 	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
CvdB:	 	 		 		 	
Crosier	80	 Very limited: Depth to	1.00	Very limited: Depth to	1.00	Very limited: Depth to	1.00
	 	saturated zone Restricted	0.21	saturated zone Restricted	0.21	saturated zone Restricted	0.21
	 	permeability	 	permeability	i I	permeability Slope	0.12
CwkA:		 				 	
Crumstown	80	Somewhat limited: Too sandy	0.02	Somewhat limited: Too sandy	0.02	Somewhat limited: Too sandy	0.02
CwkB:	 	 	1	 		 	
Crumstown	80	Somewhat limited:		Somewhat limited:		Somewhat limited:	
		Too sandy	0.02	Too sandy	0.02	Slope Too sandy	0.12
DcrA:		 		 		 	
Del Rey	85	 Very limited:		 Very limited:		 Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Restricted	0.96	saturated zone Restricted	 0.96	saturated zone Restricted	0.96
	i i	permeability	į	permeability	į	permeability	İ
EchAN:							
Edwards, drained	80	: -		Very limited:		Very limited:	
	 	Depth to saturated zone	1.00	Ponding Depth to	1.00	Depth to saturated zone	1.00
	i	Ponding	1.00	saturated zone	i	Ponding	1.00
	 	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
- 1							
EchAU: Edwards, undrained	 75	 Very limited:		 Very limited:		 Very limited:	1
	i		1.00		1.00	Depth to	1.00
		saturated zone		Depth to	1.00	:	
	 		1.00		1.00	Content of organic matter	1.00
		organic matter		organic matter		Ponding	1.00
	İ	Restricted	0.96		0.96	Restricted	0.96
	 	permeability		permeability		permeability	
EcrAN:							
Edselton, drained	70 	Very limited: Depth to	1.00	Very limited: Ponding	1.00	Very limited: Depth to	1.00
		saturated zone		Depth to	1.00	saturated zone	
	ĺ	Ponding	1.00		İ	Ponding	1.00
		:	0.96		0.96	Restricted	0.96
		permeability		permeability		permeability	

Table 11a.--Recreation--Continued

Map symbol P and soil name m u		Camp areas 		Picnic areas 		Playgrounds 	
		Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
EcrAU: Edselton, undrained-	 70 	Very limited: Depth to saturated zone	 1.00	 Very limited: Ponding	 1.00	 Very limited: Depth to saturated zone	 1.00
		Ponding Content of organic matter Restricted	1.00 1.00 0.96	Depth to saturated zone Content of organic matter Restricted	 1.00 1.00 0.96	Content of organic matter Ponding Restricted	1.00 1.00 0.96
EmeA:	 	permeability 	 	permeability 	 	permeability 	
Elston	85	 Not limited 	<u> </u> 	 Not limited 	 	Not limited	
GczA: Gilford	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
GdnA: Gilford	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
HfbAN: Henrietta, drained	 80 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00
HfbAU: Henrietta, undrained	 75 		 1.00 1.00 1.00	Fonding	i I	Folding	 1.00 1.00
HkkA: Hillsdale	 80	 	 	organic masser Not limited	 	 - Not limited	
HkkB: Hillsdale	 80 	 Not limited 	 	 Not limited 		 Somewhat limited: Slope	 0.12
HknC2: Hillsdale	 55 	 Not limited 	 	 Not limited 	 	 Very limited: Slope	 1.00
Oshtemo	 30 	 Somewhat limited: Too sandy	 0.01 	 Somewhat limited: Too sandy	 0.01 	 Very limited: Slope Too sandy	 1.00 0.01
HknD2: Hillsdale	 55 	 Somewhat limited: Slope 	 0.96	 Somewhat limited: Slope 	 0.96	 Very limited: Slope 	 1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	- 		Picnic areas 		Playgrounds 	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HknD2: Oshtemo	 30 	 Somewhat limited: Slope Too sandy	 0.96 0.01	 Somewhat limited: Slope Too sandy	 0.96 0.01	 Very limited: Slope Too sandy	 1.00 0.01
HkpC2: Hillsdale	 55 	 Not limited	 	 Not limited 		 Very limited: Slope	1.00
Tracy	 30 	 Not limited 	 	 Not limited 		 Very limited: Slope Gravel content	 1.00 0.11
HkpD2: Hillsdale	 55 	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	 1.00
Tracy	 30 	 Somewhat limited: Slope 	0.96	 Somewhat limited: Slope 	 0.96	 Very limited: Slope Gravel content	 1.00 0.11
HtbAN: Houghton, drained	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
HtbAU: Houghton, undrained-	 75 	 Very limited: Depth to saturated zone Ponding Content of organic matter	 1.00 1.00 1.00	Very limited: Ponding Depth to saturated zone Content of organic matter	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00
JaaAK: Jamestown	 80 	 Very limited: Depth to saturated zone Flooding	1.00	 Very limited: Depth to saturated zone		 Very limited: Depth to saturated zone Flooding	1.00
MfaA: Martinsville	 70	 Not limited		 Not limited		 Not limited	
MfaB2: Martinsville	 70 	 Not limited 		 Not limited 		 Somewhat limited: Slope	0.12
MfaC2: Martinsville	 80	 Not limited 	 	 Not limited 		 Very limited: Slope	 1.00
MfrAN: Madaus, drained	 80 	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.96	Depth to saturated zone	 1.00 1.00 0.96	saturated zone Ponding	 1.00 1.00 0.96

Table 11a.--Recreation--Continued

and soil name	Pct. of map unit	- -		Picnic areas		Playgrounds 	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MfrAU: Madaus, undrained	 75	 Verv limited:	1	 Very limited:	1	 Very limited:	
		Depth to	1.00	Ponding	1.00	Depth to	1.00
	į	saturated zone	į	Depth to	1.00	saturated zone	i
		Ponding	1.00	saturated zone		Ponding	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		permeability		permeability		permeability	
MgcA:	İ	I	İ	İ	İ	İ	İ
Maumee	80	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Ponding	1.00	saturated zone	1.00	saturated zone Ponding	1.00
	İ	Too sandy	0.50	Too sandy	0.50	Too sandy	0.50
				!		!	
MgdAN: Martisco, drained	 75	 Very limited:	1	 Very limited:		 Very limited:	
marcibeo, arainea	/3	Depth to	1.00		1.00	Depth to	1.00
	İ	saturated zone	i	Depth to	1.00	saturated zone	i
İ	į	Ponding	1.00	saturated zone	İ	Content of	1.00
		Content of	1.00	Content of	1.00	organic matter	
		organic matter	!	organic matter		Ponding	1.00
	l I	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
		permeability		permeability		permeability	
MhaA:			ļ				!
Maumee	80	Very limited:	11 00	Very limited:	1 00	Very limited:	11 00
	l I	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	i I	Ponding	1.00	Ponding	1.00	Ponding	1.00
	i	Too sandy	0.50	Too sandy	0.50	Too sandy	0.50
MhbA:		 		 			
Maumee	 90	 Very limited:		 Very limited:		 Very limited:	
	Ì	Depth to	1.00	Ponding	1.00	Depth to	1.00
	ĺ	saturated zone	ĺ	Depth to	1.00	saturated zone	İ
		Ponding	1.00	•		Ponding	1.00
	l	Too sandy	0.50	Too sandy	0.50	Too sandy	0.50
MmbC2:	İ		İ				
Miami	80	Somewhat limited:		Somewhat limited:		Very limited:	
		Restricted	0.21	:	0.21		1.00
	l	permeability	1	permeability		Restricted permeability	0.21
	i		į	İ	į	İ	i
MmdC3:		 Comowhat limited		 Comowhat limited		 Vom: limited	
Miami	80	'	0.21	Somewhat limited: Restricted	0.21	Very limited: Slope	1.00
	1	permeability		permeability		Restricted	0.21
	İ				İ	permeability	
MmdD3:		 		 		 	
Miami	80	 Somewhat limited:		 Somewhat limited:		 Very limited:	1
	İ	Slope	0.96	•	0.96		1.00
		Restricted	0.21	Restricted	0.21	Restricted	0.21
	1	permeability	1	permeability	1	permeability	1

Table 11a. -- Recreation -- Continued

Map symbol and soil name	Pct. of map unit	 Camp areas 		 Picnic areas 	Picnic areas		Playgrounds		
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value		
MouA: Milford	 85 	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.21	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.21	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.21		
MsaA: Mishawaka	 95 	 Somewhat limited: Too sandy	 0.04	 Somewhat limited: Too sandy	 0.04	 Somewhat limited: Gravel content Too sandy	0.06		
MtsB2: Morley	 75 	 Somewhat limited: Restricted permeability Depth to saturated zone	 0.43 0.39 	 Somewhat limited: Restricted permeability Depth to saturated zone	 0.43 0.19 	 Somewhat limited: Slope Restricted permeability Depth to saturated zone	 0.50 0.43 0.39		
MtsC2: Morley	 80 	Somewhat limited: Restricted permeability Depth to saturated zone Slope	0.43		 0.43 0.19 0.04	 Very limited: Slope Restricted permeability Depth to saturated zone	 1.00 0.43 0.39		
MubD3: Morley	 80 	Very limited: Slope Restricted permeability Depth to saturated zone	 1.00 0.43 0.39	Very limited: Slope Restricted permeability Depth to saturated zone	 1.00 0.43 0.19	Very limited: Slope Restricted permeability Depth to saturated zone	 		
MvhAN: Moston, drained	 80 	Depth to saturated zone	 1.00 1.00 0.96	•	 1.00 1.00 0.96	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.96		
MvhAU: Moston, undrained	 75 	Depth to saturated zone	 1.00 1.00 1.00 0.96	Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 0.96	saturated zone Content of organic matter Ponding	 1.00 1.00 1.00		
Mvka: Morocco	 85 	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88		

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	i !		Picnic areas		Playgrounds 	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MwzhN: Muskego, drained	 75 	Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.96	 Very limited: Ponding Depth to saturated zone Restricted permeability	 1.00 1.00 0.96	 Very limited: Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.96
MwzAU: Muskego, undrained	 70 	Very limited: Depth to saturated zone Ponding Content of organic matter Restricted permeability	 1.00 1.00 1.00 0.96	Content of organic matter	 1.00 1.00 1.00 1.00 0.96	 Very limited: Depth to saturated zone Content of organic matter Ponding Restricted permeability	 1.00 1.00 1.00 0.96
OkrA:	 80 	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	
OkrB:	 80 	 Somewhat limited: Too sandy 	 0.02	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Slope Too sandy	 0.12 0.02
OkrC2:	 80 	 Somewhat limited: Too sandy 	 0.02	 Somewhat limited: Too sandy 	 0.02	 Very limited: Slope Too sandy	 1.00 0.02
OkrD: Oshtemo	 80 	 Somewhat limited: Slope Too sandy	 0.96 0.02	 Somewhat limited: Slope Too sandy	 0.96 0.02	 Very limited: Slope Too sandy	 1.00 0.02
OlcA: Oshtemo	 80 	 Somewhat limited: Too sandy	0.01	 Somewhat limited: Too sandy	0.01	 Somewhat limited: Too sandy	0.01
OlcB: Oshtemo	 80 	 Somewhat limited: Too sandy	0.01	 Somewhat limited: Too sandy	0.01	 Somewhat limited: Slope Too sandy	0.12
OlcC2:	 80 	 Somewhat limited: Too sandy	 0.01	 Somewhat limited: Too sandy 	 0.01	 Very limited: Slope Too sandy	 1.00 0.01
OlcD: Oshtemo	 80 	 Somewhat limited: Slope Too sandy	 0.96 0.01	 Somewhat limited: Slope Too sandy	 0.96 0.01	 Very limited: Slope Too sandy	 1.00 0.01
OmgA: Osolo	 85 	 Somewhat limited: Too sandy 	 0.50	 Somewhat limited: Too sandy 	 0.50	 Somewhat limited: Too sandy 	 0.50

Table 11a. -- Recreation -- Continued

Map symbol and soil name	Pct.	Camp areas		Picnic areas		Playgrounds	
	map unit	 		 			
	 	Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
PaaAN: Palms, drained	80	:		 Very limited:	:	 Very limited:	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00 	Depth to saturated zone	1.00
	 	Content of organic matter	1.00 	Content of organic matter	1.00	Content of organic matter	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
PaaAU:		 		 		 	
Palms, undrained	75	:		Very limited:	:	Very limited:	
	 	Depth to saturated zone	1.00 	Ponding Depth to	1.00 1.00	Depth to saturated zone	1.00
	į	Ponding	1.00	!	į	Content of	1.00
	 	Content of organic matter	1.00 	Content of organic matter	1.00	organic matter Ponding	1.00
Dma							
Pmg: Pits, gravel	100	 Not rated		 Not rated		 Not rated	
PxlA:		 		 			
Psammaquents	85 	Not rated 	 	Not rated 		Not rated 	
Pxo: Psamments	 	Not maked	į	Not maked	į	 	į
Psamments	65	NOT Faced		Not rated 		Not rated 	
QuiA: Quinn	80	 Very limited:		 Very limited:		 Very limited:	
Quimi		Depth to	1.00	: -	1.00	Depth to	1.00
	 	saturated zone		saturated zone		saturated zone	
QujA:		 		 		 	
Quinn	75	:		Very limited:	:	Very limited:	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			0.04	:	0.04	Gravel content	0.06
		 		 		Too sandy	0.04
RenA:							
Rensselaer	85	Very limited: Depth to	 1.00	Very limited: Ponding	 1.00	Very limited: Depth to	1.00
	 	saturated zone	1.00		1.00	saturated zone	1.00
	i i	Ponding	1.00	saturated zone	į	Ponding	1.00
ReyA:							
Rensselaer	75		 1.00	Very limited: Ponding	 1.00	Very limited: Depth to	1.00
	 	saturated zone			1.00		1.00
	i I		1.00			Ponding	1.00
RopA:		 		 		 	
Riddles	50 	Not limited	 	Not limited		Not limited	
Oshtemo	35	'		Somewhat limited:	'	Somewhat limited:	
		Too sandy	0.02	Too sandy	0.02	Too sandy	0.02

Table 11a.--Recreation--Continued

and soil name	Pct. of map			Picnic areas		Playgrounds	
	unit 	Rating class and limiting features	Value	Rating class and limiting features	Value	 Rating class and limiting features	Value
RopB: Riddles	 50 	 Not limited 		 Not limited 		 Somewhat limited: Slope	
Oshtemo	 35 	 Somewhat limited: Too sandy	0.02	 Somewhat limited: Too sandy 	0.02	 Somewhat limited: Slope Too sandy	0.12
RopC2: Riddles	 50 	 Not limited 	 	 Not limited 	 	 Very limited: Slope	 1.00
Oshtemo	 35 	 Somewhat limited: Too sandy 	 0.02 	 Somewhat limited: Too sandy 	 0.02 	 Very limited: Slope Too sandy	 1.00 0.02
RopD2: Riddles	 50 	 Somewhat limited: Slope	0.96	 Somewhat limited: Slope	0.96	 Very limited: Slope	1.00
Oshtemo	 35 	 Somewhat limited: Slope Too sandy	0.96	: -	0.96		 1.00 0.02
RoqB: Riddles	 55 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.12
Metea	 30 	 Somewhat limited: Too sandy 	0.50	 Somewhat limited: Too sandy 	0.50	Somewhat limited: Too sandy Slope	0.50
RoqC2: Riddles	 55 	 Not limited 	 	 Not limited 	 	 Very limited: Slope	
Metea	 30 	 Somewhat limited: Too sandy 	0.50	 Somewhat limited: Too sandy 	0.50	 Very limited: Slope Too sandy	 1.00 0.50
RoqD2: Riddles	 50 	 Somewhat limited: Slope	0.96	 Somewhat limited: Slope	0.96	 Very limited: Slope	
Metea	 30 	 Somewhat limited: Slope Too sandy	 0.96 0.50	: -	 0.96 0.50	: -	 1.00 0.50
SdzA:	I I	 		 		 	1
Selfridge	 50 	Somewhat limited: Depth to saturated zone Too sandy Restricted permeability	 0.98 0.50 0.21	saturated zone Too sandy	 0.75 0.50 0.21	saturated zone Too sandy	 0.98 0.50 0.21
Crosier	 35 	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.21	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.21	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.21

Table 11a.--Recreation--Continued

and soil name	Pct. of map	- 		Picnic areas		Playgrounds	
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
SdzaB: Selfridge	 50 	 Somewhat limited: Depth to saturated zone Too sandy Restricted permeability	 0.98 0.50 0.21	 Somewhat limited: Depth to saturated zone Too sandy Restricted permeability	 0.75 0.50 0.21		 0.98 0.50 0.21
Brems	 35 	 Somewhat limited: Too sandy	 0.59 	 Somewhat limited: Too sandy	 0.59 	 Somewhat limited: Too sandy Slope	 0.59 0.12
SesA: Schoolcraft	 80 	 Not limited 	 	 Not limited 	 	 Not limited 	
SnlA: Southwest	 75 		 1.00 1.00 0.21		 1.00 1.00 0.21		 1.00 1.00 0.21
TmpA: Tracy	80 	 Not limited 		 Not limited	 	 Somewhat limited: Gravel content	0.11
TmpB: Tracy	 80 	 Not limited 		 Not limited 	 	 Somewhat limited: Slope Gravel content	0.12
TmpC2: Tracy	 80 	 Not limited 		 Not limited 	 	 Very limited: Slope Gravel content	 1.00 0.11
TmpD: Tracy	 80 	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope Gravel content	 1.00 0.11
TnwA: Troxel	 80 	 Not limited 		 Not limited 	 	 Not limited 	
TxuA: Tyner	 85 		 0.92	 Somewhat limited: Too sandy 	 0.92	 Somewhat limited: Too sandy	 0.92
TxuB: Tyner	 85 	'	 0.92	 Somewhat limited: Too sandy	 0.92	 Somewhat limited: Too sandy Slope	 0.92 0.12
TxuC: Tyner	 85 		 0.92	 Somewhat limited: Too sandy 	 0.92	 Very limited: Slope Too sandy	 1.00 0.92

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct.	Camp areas		Picnic areas		Playgrounds	
	map unit	 		 		 	
		Rating class and limiting features	Value	Rating class and limiting features		Rating class and limiting features	Value
TxuD:		 		 		 	
Tyner	85	Somewhat limited:		Somewhat limited:	İ	Very limited:	İ
			0.96 0.92		0.96		1.00
TxuF:]		 		 	
Tyner	80	 Very limited:		Very limited:	i	 Very limited:	i
	į	Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.92	Too sandy	0.92	Too sandy	0.92
Uam:	į		İ		İ		i
Udorthents, loamy	100 	Not rated 		Not rated 		Not rated 	
UdeA: Urban land		 Not maked		 Not rated		 Not rated	
Oldan Tand		 				 	
Bainter	40	Not limited	 	Not limited		Not limited	
UdeB:	İ	İ	İ	İ	İ	İ	į
Urban land	50	Not rated 	 	Not rated	 	Not rated 	
Bainter	40	Not limited		Not limited	 	Somewhat limited:	0.12
UdeC:	Ì						
Urban land	50	Not rated	 	Not rated		Not rated	
Bainter	40	Not limited	i i	Not limited		 Very limited: Slope	1.00
UdkA:	 	 	l I	 		 	
Urban land	50	Not rated	į	Not rated		Not rated	į
Brady	40	 Very limited:		 Very limited:		 Very limited:	
			1.00		1.00		1.00
		saturated zone		saturated zone		saturated zone Gravel content	0.04
UdzA:		 		 		 	
Urban land	50	Not rated	į	Not rated		Not rated	į
Auten	40	 Very limited:	 	 Very limited:		 Very limited:	
			1.00		1.00		1.00
	 	saturated zone		saturated zone		saturated zone	
UeaA:	İ		İ	İ	İ	İ	i
Urban land	50	Not rated		Not rated		Not rated	
Crosier	40	Very limited:	İ	Very limited:	İ	 Very limited:	i
		: -	1.00		1.00	: -	1.00
		saturated zone		saturated zone		saturated zone	
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
UeqA:		 	 	 	 	 	
Urban land	50	Not rated		 Not rated	 	 Not rated 	İ
Gilford	40	 Very limited:		 Very limited:		 Very limited:	[
	Ì		1.00		1.00		1.00
		saturated zone		saturated zone		saturated zone	
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 11a. -- Recreation -- Continued

Map symbol and soil name	Pct. of map	 Camp areas 		 Picnic areas 		 Playgrounds 	
	unit						
		Rating class and	Value	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u> </u>	limiting features		limiting features	<u> </u>
UewA:	 	 	 	 	 	 	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Brems	25	1	0.59	Somewhat limited:	0.59	Somewhat limited: Too sandy	0.59
Morocco	 15	 Very limited:	 	 Very limited:	 	 Very limited:	
MOIOCCO	13		1.00		1.00	: -	1.00
	İ	saturated zone		saturated zone		saturated zone	
	i	Too sandy	0.88	Too sandy	0.88	Too sandy	0.88
UfbA:							
Urban land	50	Not rated		Not rated		Not rated	
Brookston		 Vorm: limited.		 Very limited:		 Very limited:	
BIOOKS COII	40		1.00		1.00		1.00
	i I	saturated zone			1.00	saturated zone	
	İ	'	1.00	saturated zone	İ	Ponding	1.00
	İ		į	İ	į		j
UfhA:							
Urban land	50	Not rated		Not rated		Not rated	
a 1							
Coloma	40	<u>. </u>		Very limited:	:	Very limited:	1.00
	l I	Too sandy	1.00	Too sandy	1.00	Too sandy	1
UfhB:	İ		İ	! 			
Urban land	50	Not rated	İ	Not rated	i	Not rated	i
Coloma	40	<u>. </u>		Very limited:	:	Very limited:	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	l I	 	l I	 		Slope	0.50
UfhC:	l I	 		 		 	l
Urban land	50	Not rated	i	Not rated	İ	Not rated	i
	i	İ	į	İ	į	İ	İ
Coloma	40	Very limited:		Very limited:		Very limited:	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
						Slope	1.00
UfmA:	l I	 	l I	 	l I	 	I
Urban land	50	Not rated		 Not rated		 Not rated	
			İ		İ		i
Coupee	40	Not limited	İ	Not limited	İ	Not limited	İ
UfrA:						_	
Urban land	50	Not rated		Not rated		Not rated	
Del Rey	 40	 Verv limited:	1	 Very limited:	 	 Very limited:	
zor woj	20			: -	:	Depth to	1.00
	İ	saturated zone		saturated zone		saturated zone	
		Restricted	0.96	Restricted	0.96	Restricted	0.96
		permeability		permeability		permeability	
UftA:		 					
Urban land	50	NOT rated	 	Not rated	 	Not rated	
Elston	 40	 Not limited	1	 Not limited	 	 Not limited	
					1		

Table 11a.--Recreation--Continued

and soil name	Pct. of map unit			Picnic areas		Playgrounds 	
	 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UfzA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Mishawaka	 45 		 0.04 	 Somewhat limited: Too sandy 	 0.04 	 Somewhat limited: Gravel content Too sandy	 0.06 0.04
UgaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Morocco	 40 	Depth to saturated zone	 1.00 0.88	saturated zone	 1.00 0.88	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88
UglA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Osolo	 40 			 Somewhat limited: Too sandy		 Somewhat limited: Too sandy	 0.50
UgrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Rensselaer	 40 	Depth to saturated zone	 1.00 1.00	Depth to	 1.00 1.00	: -	 1.00 1.00
UgsA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	25	 Not limited	<u> </u> 	 Not limited	<u> </u> 	 Not limited	<u> </u>
Oshtemo	 15 		 0.02	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	0.02
UgsB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.12
Oshtemo	 15 		 0.02 	 Somewhat limited: Too sandy 	 0.02 	 Somewhat limited: Slope Too sandy	 0.12 0.02
UgvA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tyner	 40 		 0.92	 Somewhat limited: Too sandy	 0.92	 Somewhat limited: Too sandy	0.92
UgvB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 		 0.92 	 Somewhat limited: Too sandy 	 0.92 	 Somewhat limited: Too sandy Slope 	 0.92 0.12

Table 11a.--Recreation--Continued

	Pct.	 Camp areas 		 Picnic areas 		 Playgrounds 	
	map						
	unit	i		İ		İ	
	 	Rating class and limiting features	Value 	Rating class and limiting features	Value 	Rating class and limiting features	Value
	ļ						
UgvC: Urban land	 50 	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 	•	0.92	 Somewhat limited: Too sandy	0.92	 Very limited: Slope	1.00
	 	loo bandy		loo banay		Too sandy	0.92
UgvD:		 		 		 	
Urban land	50 	Not rated	 	Not rated	 	Not rated	į į
Tyner	40	Somewhat limited:	İ	Somewhat limited:	İ	Very limited:	i
			0.96		0.96		1.00
		Too sandy	0.92	Too sandy	0.92	Too sandy	0.92
UhmA:	 	 	 	 	 	 	
Urban land	50	 Not rated 	 	 Not rated 	 	Not rated	İ
Hillsdale	40	 Not limited	 	 Not limited		 Not limited	
UhmB:	İ	<u> </u>		<u> </u>		<u> </u>	
Urban land	50 	Not rated 		Not rated 	 	Not rated 	
Hillsdale	40	Not limited	į Į	Not limited	<u>.</u> !	Somewhat limited:	0.12
UhoC:	 	 		 	 	 	
Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Hillsdale	 30 	 Not limited 	 	 Not limited 	 	 Very limited: Slope	1.00
Oshtemo	15	•	0.01	Somewhat limited: Too sandy	0.01	Very limited: Slope	1.00
						Too sandy	0.01
UhoD:	l I	 	 	 	 	 	
Urban land	50	Not rated		Not rated		Not rated	
Hillsdale	30	 Somewhat limited:		Somewhat limited:		 Very limited:	
	 	Slope 	0.96	Slope 	0.96	Slope 	1.00
Oshtemo	15	Somewhat limited:	į	Somewhat limited:	į	Very limited:	i
			0.96		0.96		1.00
	 	Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
UhpC:		! 		! 		! 	
Urban land	50	Not rated		Not rated	 	Not rated	İ
Hillsdale	30	Not limited		 Not limited		Very limited:	i
						Slope	1.00
Tracy	 15	 Not limited		 Not limited		 Very limited:	
		 	 	 	 	Slope Gravel content	1.00
		 		 		Graver content	

Table 11a.--Recreation--Continued

	Pct. of	Camp areas		Picnic areas		Playgrounds	
	map						
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Valu
	!						1
UhpD: Urban land	 50 	 Not rated 		 Not rated 	 	 Not rated 	
Hillsdale	30	Somewhat limited:	0.96	Somewhat limited:	0.96	 Very limited: Slope	1.00
Tracy	 15 	 Somewhat limited: Slope 	 0.96 	 Somewhat limited: Slope 	 0.96 	 Very limited: Slope Gravel content	 1.00 0.11
UhwA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Martinsville	40	 Not limited 		 Not limited 	 	 Not limited 	
UhwB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Martinsville	 40 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.12
UhwC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Martinsville	 40 	 Not limited 		 Not limited 	 	 Very limited: Slope	1.00
7713							
UkaA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Maumee	40	Depth to	1.00		1.00	Very limited: Depth to	1.00
	 	saturated zone	1.00	saturated zone	1.00	saturated zone	1.00
	 	Too sandy	0.50	Too sandy	0.50	Too sandy	0.50
UkeA:		 		 Not rated		 Not rated	
Urban land	50	NOT Fated		NOT Fated		Not rated 	
Milford	40	Very limited: Depth to saturated zone	1.00	Very limited: Depth to saturated zone	1.00	Very limited: Depth to saturated zone	1.00
		Ponding	1.00	'	1.00	•	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
UkxA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
	İ	İ	į		į	į	
Oshtemo	40 	!	0.01	Somewhat limited: Too sandy	0.01	Somewhat limited: Too sandy	0.01
UkxB: Urban land	 50	Not rated	 	 Not rated	 	 Not rated	
Oshtemo	 40 	 Somewhat limited: Too sandy	 0.01	 Somewhat limited: Too sandy	 0.01	 Somewhat limited: Slope	 0.12

Table 11a.--Recreation--Continued

and soil name	Pct. of map	Camp areas		Picnic areas		Playgrounds	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UkxC: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Oshtemo	40 	!	0.01	Somewhat limited: Too sandy	0.01	Very limited: Slope Too sandy	 1.00 0.01
UmfB:	 	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated		Not rated	
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.12
Metea	 15 		 0.50	 Somewhat limited: Too sandy 	 0.50	 Somewhat limited: Too sandy Slope	 0.50 0.12
UmfC:	 	 	 	 	 		
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Very limited: Slope	 1.00
Metea	 15 		 0.50 	 Somewhat limited: Too sandy	 0.50 	 Very limited: Slope Too sandy	 1.00 0.50
UmfD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	 1.00
Metea	 15 	Slope	 0.96 0.50	: -	 0.96 0.50	_	 1.00 0.50
UmpA:	 	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Schoolcraft	 40	 Not limited	 	 Not limited	 	 Not limited	
UmuA:				 			
Urban land	50	Not rated		Not rated		Not rated	
Southwest	 40 	saturated zone	 1.00 1.00 0.21	saturated zone Ponding	 1.00 1.00 0.21	saturated zone Ponding	 1.00 1.00 0.21
UmwA:		Not rated	İ	Not rated		Not rated	
Urban land	50	NOC rated 		Not rated 		Not rated 	
Tracy	40	Not limited		Not limited		Somewhat limited: Gravel content	0.11

Table 11a. -- Recreation -- Continued

and soil name	Pct. of map unit	 		 Picnic areas 		 Playgrounds 	
	 	·	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UmwB: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Tracy	 40 	Not limited 	 	Not limited 		Somewhat limited: Slope Gravel content	0.12
UmwC: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Tracy	 40 	 Not limited 	 	 Not limited 	 	 Very limited: Slope Gravel content	1.00
UmwD: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tracy	 40 		 0.96 	 Somewhat limited: Slope 	 0.96 	 Very limited: Slope Gravel content 	 1.00 0.11
UmxA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Troxel	40	 Not limited		 Not limited		 Not limited	
UnoA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Whitaker	 40 		 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	1.00
UnqB: Urban land	 50	 Not rated		 Not rated	 	 Not rated	
Williamstown	 25 	Depth to saturated zone	 0.39 0.21 	permeability	 0.21 0.19 	saturated zone	 0.39 0.21 0.12
Crosier	 15 	Depth to saturated zone	 1.00 0.21 	saturated zone	 1.00 0.21 	saturated zone	 1.00 0.21 0.12
UntA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Wunabuna, drained	 40 	Depth to saturated zone	 	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
Usl: Udorthents, rubbish-	 100	 Not rated 	 	 Not rated	 	 Not rated	

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	- 		 Picnic areas 		 Playgrounds 	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
W: Water	 100	 Not rated 	 	 Not rated 	 	 Not rated 	
WcnAI: Waterford	 80 	 Very limited: Depth to saturated zone Flooding	 1.00 1.00	 Very limited: Depth to saturated zone Flooding	 1.00 0.40	 Very limited: Depth to saturated zone Flooding	1.00
WoaA: Williamstown	 85 	 Somewhat limited: Depth to saturated zone Restricted permeability	 0.39 0.21	 Somewhat limited: Restricted permeability Depth to saturated zone	 0.21 0.19 	 Somewhat limited: Depth to saturated zone Restricted permeability	 0.39 0.21
WoaB2: Williamstown	 85 	 Somewhat limited: Depth to saturated zone Restricted permeability	 0.39 0.21 	 Somewhat limited: Restricted permeability Depth to saturated zone	 0.21 0.19 	 Somewhat limited: Depth to saturated zone Restricted permeability Slope	 0.39 0.21 0.12
WoaC2: Williamstown	 80 	 Somewhat limited: Depth to saturated zone Restricted permeability	 0.39 0.21 	Somewhat limited: Restricted permeability Depth to saturated zone	 0.21 0.19 	Very limited: Slope Depth to saturated zone Restricted permeability	 1.00 0.39 0.21
WobB: Williamstown	 50 	 Somewhat limited: Depth to saturated zone Restricted permeability	 0.39 0.21 	 Somewhat limited: Restricted permeability Depth to saturated zone	 0.21 0.19 	Somewhat limited: Depth to	 0.39 0.21
Crosier	 30 		 1.00 0.21 	Very limited: Depth to saturated zone Restricted permeability	 1.00 0.21 	Very limited: Depth to saturated zone Restricted permeability Slope	 1.00 0.21 0.12
WrxAN: Wunabuna, drained	 85 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
WtbA: Whitaker	 75 		 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	

Table 11a.--Recreation--Continued

Map symbol	Pct.	Camp areas		Picnic areas		 Playgrounds	
and soil name	of	1		I		1	
and boll name	map	! 		İ		! 	
	unit	 		1		 	
	unit	·				<u> </u>	
		Rating class and	Value	Rating class and	Value	Rating class and	Valu
		limiting features		limiting features		limiting features	
/ujB:							
Williamstown	45	Somewhat limited:	İ	Somewhat limited:	İ	Somewhat limited:	İ
	ĺ	Depth to	0.39	Restricted	0.21	Depth to	0.39
i	İ	saturated zone	İ	permeability	İ	saturated zone	i
	ì	Restricted	0.21	Depth to	0.19	Restricted	0.21
	i	permeability	i	saturated zone	i	permeability	i
	i	i	i	i	i	Slope	0.12
	i		i	1	i		
Moon	40	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	ì	Too sandy	0.59	Too sandy	0.59	Too sandy	0.59
	i	Depth to	0.07	Depth to	0.03	Slope	0.12
	i	saturated zone	i	saturated zone	i	Depth to	0.07
	İ		i		i	saturated zone	
	1	 	1	[[1	Gravel content	0.06
	1	1	1	1	1	Graver Content	10.00

Table 11b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

and soil name	Pct.	Paths and trail	s	Off-road motorcycle trai	ls	 Golf fairways 	3
	map unit	 		 		 	
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
	!	<u> </u>		!		<u> </u>	!
AahAK: Abscota	 80 		 0.50 	 Somewhat limited: Too sandy 	 0.50	 Somewhat limited: Droughty Flooding	 0.66 0.60
	į		į	į	į		į
AatAN: Ackerman, drained	 85	<u>. </u>		 Very limited:		 Very limited:	
	 	saturated zone	1.00 1.00	saturated zone	1.00 1.00	Ponding Depth to saturated zone	1.00
Abhan:	 	 	 	 		 	
Adrian, drained	75 		 1.00 	 Very limited: Depth to saturated zone	1.00	 Very limited: Ponding Depth to	 1.00 1.00
	į	Ponding	1.00	Ponding	1.00	saturated zone	İ
AbhAU:	 	 	 	 		 	
Adrian, undrained	75	Depth to	1.00		1.00		11.00
	 	saturated zone Content of organic matter	1.00	saturated zone Content of organic matter	1.00	Content of organic matter Depth to	1.00 1.00
			1.00		1.00	saturated zone	
ApuAN:	 	 		 		 	
Antung, drained	75 		1.00	Very limited: Depth to	1.00	Very limited: Ponding	1.00
	 	saturated zone Ponding	 1.00	saturated zone	 1.00	Depth to saturated zone	1.00
AxvA:	 	 	 	 		 	
Auten	82			Very limited:		Very limited:	
	 	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BaaA: Bainter	 85	 Not limited	 	 Not limited	 	 Not limited	
	į	 -	į	 -	į	 -	İ
BaaB: Bainter	 85 	 Not limited 	 	 Not limited 	 	 Not limited 	
BaaC2: Bainter	 85	 Not limited	 	 Not limited	 	 Not limited	
BbmA: Baugo	 85 			 Very limited: Depth to saturated zone	 1.00	Very limited: Depth to saturated zone	 1.00
BmgA: Blount	 85	 Very limited:	 	 Very limited:	 	 Very limited:	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00 	Depth to saturated zone	1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Off-road motorcycle trai	ls	 Golf fairways 	3
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
BshA: Brady	 90 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00	Very limited: Depth to saturated zone	 1.00
BsxA: Brems	 50	 Somewhat limited: Too sandy	 0.59	 Somewhat limited: Too sandy	 0.59	 Somewhat limited: Droughty	 0.01
Morocco	 40 	 Very limited: Depth to saturated zone	į	 Very limited: Depth to saturated zone	į	 Very limited: Depth to saturated zone Droughty	 1.00 0.15
BteA: Brems	 80 	 Somewhat limited: Too sandy	 0.59	 Somewhat limited: Too sandy	 0.59	 Somewhat limited: Droughty	0.01
BuuA: Brookston	 80 	Depth to saturated zone	 1.00 1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
CmbAI: Cohoctah	 75 	Very limited: Depth to saturated zone Flooding	 1.00 0.40	Very limited: Depth to saturated zone Flooding	 1.00 0.40	 Very limited: Flooding Depth to saturated zone	 1.00 1.00
CnbA: Coloma	 85 	 Very limited: Too sandy 	 1.00	 Very limited: Too sandy 	 1.00	 Somewhat limited: Too sandy Droughty	 0.50 0.22
CnbB: Coloma	 85 	· -	 1.00	 Very limited: Too sandy 	 1.00	 Somewhat limited: Too sandy Droughty	 0.50 0.22
CnbC: Coloma	 85 		 1.00	 Very limited: Too sandy 	 1.00	 Somewhat limited: Too sandy Droughty	0.50
CnbD: Coloma	 85 	· -	 1.00 	 Very limited: Too sandy 	 1.00 	 Somewhat limited: Slope Too sandy Droughty	 0.96 0.50 0.22
CrrA: Coupee	 85 	 Not limited 	 	 Not limited 	 	 Not limited 	
CvdA: Crosier	 85 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	Very limited: Depth to saturated zone	

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Off-road motorcycle trai	ls	 Golf fairways 	
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
CvdB: Crosier	 80 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00
CwkA: Crumstown	 80 	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	0.02	 Somewhat limited: Droughty	0.01
CwkB: Crumstown	 80 	 Somewhat limited: Too sandy	0.02	 Somewhat limited: Too sandy	0.02	 Somewhat limited: Droughty	0.01
DcrA: Del Rey	 85 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00
EchAN: Edwards, drained	 80 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone Carbonate content	 1.00 1.00 1.00
EchAU: Edwards, undrained	 75 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00		 1.00 1.00 1.00 1.00
EcrAN: Edselton, drained	 70 	Very limited: Depth to saturated zone Ponding	 1.00 1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00	Very limited: Ponding Depth to saturated zone Carbonate content	 1.00 1.00 1.00
EcrAU: Edselton, undrained-	 70 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	saturated zone	 1.00 1.00 1.00	Content of	 1.00 1.00 1.00 1.00
EmeA: Elston	 85 	 Not limited 	 	 Not limited 	 	 Not limited 	
GczA: Gilford	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct.	į	s	Off-road motorcycle trai	ls	Golf fairways	•
	map unit	:		1		 	
		Rating class and	Value	Rating class and limiting features	Value	Rating class and	Value
GdnA:							
Gdilford	 75 	Depth to saturated zone	1.00	saturated zone	1.00	saturated zone	
	l I	Ponding	1.00	Ponding	1.00	Ponding 	1.00
HfbAN:	İ	İ	İ	İ	İ	İ	İ
Henrietta, drained	80 		 1.00 1.00	saturated zone	 1.00 1.00	organic matter	 1.00 1.00
		organic matter		organic matter		saturated zone	
	l I	Ponding	1.00	Ponding	1.00	Ponding 	1.00
HfbAU: Henrietta, undrained	 75	: -	 1.00	 Very limited: Depth to	 1.00	 Very limited: Ponding	 1.00
	İ	saturated zone		saturated zone		Content of	1.00
		Content of	1.00	•	1.00	organic matter	
	l I	organic matter Ponding	1.00	organic matter Ponding	1.00	Depth to saturated zone	1.00
	i		İ		İ		İ
HkkA: Hillsdale	 80 	 Not limited 	 	 Not limited 	 	 Not limited 	
HkkB:			İ				
Hillsdale	80	Not limited		Not limited	1	Not limited	
HknC2:		 				 	
Hillsdale	55	Not limited	İ	Not limited	İ	Not limited	İ
Oshtemo	 30 	:	 0.01	 Somewhat limited: Too sandy	 0.01	 Not limited 	
HknD2: Hillsdale	 55	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.96
Oshtemo	30	 Somewhat limited: Too sandy	0.01	 Somewhat limited: Too sandy	0.01	 Somewhat limited:	0.96
HkpC2:	l I	 	 	 		 	
Hillsdale	55	 Not limited		Not limited	İ	Not limited	
Tracy	30	 Not limited		 Not limited		 Not limited	
HkpD2: Hillsdale	 55	 Not limited	 	 Not limited	 	 Somewhat limited:	
		 	 	 		Slope	0.96
Tracy	30	 Not limited 		Not limited		Somewhat limited:	0.96
HtbAN:	l I	 	 	 		 	
Houghton, drained	75	Depth to	1.00	: -	1.00	· -	1.00
	l I	saturated zone	 1.00	saturated zone Ponding	1.00	Depth to saturated zone	1.00
	İ						i

Table 11b. -- Recreation -- Continued

Map symbol and soil name	Pct. of map	 	s	Off-road motorcycle trai 	ls	Golf fairways 	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
HtbAU: Houghton, undrained-	 75 	Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00	Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00	Very limited: Ponding Content of organic matter Depth to saturated zone	 1.00 1.00 1.00
JaaAK: Jamestown	 80 	 Very limited: Depth to saturated zone 	 1.00 	 Very limited: Depth to saturated zone 	 1.00 	 Very limited: Depth to saturated zone Flooding	 1.00 0.60
MfaA: Martinsville	 70 	 Not limited 	 	 Not limited 	 	 Not limited 	
MfaB2: Martinsville	 70 	 Not limited 	 	 Not limited 	 	 Not limited 	
MfaC2: Martinsville	 80 	 Not limited 	 	 Not limited 	 	 Not limited 	
MfrAN: Madaus, drained	 80 	Depth to saturated zone	 1.00 1.00 	Very limited: Depth to saturated zone Ponding	 1.00 1.00 	 Very limited: Ponding Depth to saturated zone Carbonate content Droughty	 1.00 1.00 1.00 0.06
MfrAU: Madaus, undrained	 75 	:	 1.00 1.00 	 Very limited: Depth to saturated zone Ponding 	 1.00 1.00 	 Very limited: Ponding Depth to saturated zone Carbonate content Droughty	 1.00 1.00 1.00 0.06
MgcA: Maumee	 80 	 Very limited: Depth to saturated zone Ponding Too sandy	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Too sandy	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Droughty	 1.00 1.00 0.01
MgdAN: Martisco, drained	 75 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	 Very limited: Ponding Content of organic matter Depth to saturated zone Carbonate content	 1.00 1.00 1.00
MhaA: Maumee	 80 	 Very limited: Depth to saturated zone Ponding Too sandy	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Too sandy	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Droughty	 1.00 1.00 0.01

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways 	
	unit 	'		 Rating class and limiting features	'	 Rating class and limiting features	Value
MhbA: Maumee	 90 	Depth to saturated zone Ponding	 1.00 1.00 0.50	saturated zone Ponding	 1.00 1.00 0.50	Depth to saturated zone	 1.00 1.00 0.01
MmbC2:	 80	 Not limited	 	 Not limited	 	 Not limited	
MmdC3: Miami	 80	 Not limited	 	 Not limited	 	 Not limited 	
MmdD3: Miami	 80 	 Not limited 	 	 Not limited 		 Somewhat limited: Slope	 0.96
MouA: Milford	 85 	Depth to saturated zone	:	saturated zone	:	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
MsaA: Mishawaka	 95 	'	 0.04	 Somewhat limited: Too sandy	 0.04	 Not limited 	
MtsB2: Morley	 75 	 Not limited 	 	 Not limited 	 	saturated zone	 1.00 0.19 0.01
MtsC2: Morley	 80 			 Very limited: Water erosion 	 1.00 	Depth to saturated zone Slope	 1.00 0.19 0.04 0.01
MubD3: Morley	 80 	 Not limited 	 	 Not limited 	 	 Very limited: Slope Carbonate content Depth to saturated zone Droughty	 1.00 1.00 0.19
MvhAN: Moston, drained	 80 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	Depth to	 1.00 1.00

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	 	s	Off-road motorcycle trai	ls	Golf fairways 	3
	 	Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MvhAU: Moston, undrained	 75 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 	 Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 	 Very limited: Ponding Content of organic matter Depth to saturated zone	 1.00 1.00 1.00
Mvka: Morocco	 85 	 Very limited: Depth to saturated zone Too sandy	 1.00 0.88	Very limited: Depth to saturated zone Too sandy	 1.00 0.88	 Very limited: Depth to saturated zone Droughty	 1.00 0.15
MwzAN: Muskego, drained	75 75 1	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
MwzAU: Muskego, undrained	 70 	Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00	Very limited: Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00		 1.00 1.00 1.00
OkrA:	 80 	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	 0.02	 Not limited 	
OkrB: Oshtemo	 80 	 Somewhat limited: Too sandy		 Somewhat limited: Too sandy		 Not limited 	
OkrC2: Oshtemo	 80 	 Somewhat limited: Too sandy		 Somewhat limited: Too sandy		 Not limited 	
OkrD: Oshtemo	80	 Somewhat limited: Too sandy	'	 Somewhat limited: Too sandy		 Somewhat limited: Slope	0.96
OlcA: Oshtemo	 80 	•		 Somewhat limited: Too sandy		•	
OlcB: Oshtemo	 80 	•		 Somewhat limited: Too sandy		•	
OlcC2:	80	•		 Somewhat limited: Too sandy		•	
OlcD: Oshtemo	 80 		 0.01	 Somewhat limited: Too sandy 	 0.01	 Somewhat limited: Slope 	 0.96

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of	Paths and trail	s	Off-road motorcycle trai	ls	Golf fairways 	3
	unit						
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OmgA:				 	1	 	
Osolo	85	Somewhat limited: Too sandy	0.50	Somewhat limited: Too sandy	0.50	Somewhat limited: Droughty	0.07
PaaAN:	l I	 	 	 	1	 	1
Palms, drained	 80 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Content of organic matter	 1.00
		Content of organic matter	1.00	organic matter	1.00	Depth to saturated zone	1.00
		Ponding 	1.00	Ponding 	1.00	Ponding 	1.00
PaaAU: Palms, undrained	 75 	 Very limited: Depth to	 1.00	 Very limited: Depth to	 1.00	 Very limited: Ponding	 1.00
	 	saturated zone Content of organic matter	 1.00	saturated zone Content of organic matter	 1.00	Content of organic matter Depth to	1.00 1.00
	İ	Ponding	1.00		1.00	saturated zone	
_							
Pmg: Pits, gravel	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
PxlA: Psammaquents	 85 	 Not rated 	 	 Not rated 	 	 Not rated 	
Pxo: Psamments	 85 	 Not rated 	 	 Not rated 	 	 Not rated 	
QuiA: Quinn	 80 	Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00
QujA: Quinn	 75 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	1.00	 Very limited: Depth to saturated zone	 1.00
		Too sandy	0.04	Too sandy	0.04	saturated zone	
D3							
Rensselaer	 85 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	saturated zone	 1.00 1.00	Depth to	 1.00 1.00
ReyA: Rensselaer	 75 	 Very limited: Depth to	 1.00	 Very limited: Depth to	 1.00	 Very limited: Ponding	 1.00
	 	saturated zone Ponding	 1.00	saturated zone Ponding	 1.00	Depth to saturated zone	1.00
RopA: Riddles	50	 Not limited		 Not limited		 Not limited	
Oshtemo	 35 	 Somewhat limited: Too sandy	 0.02	 Somewhat limited: Too sandy	 0.02	 Not limited 	

Table 11b.--Recreation--Continued

and soil name	Pct. of map unit		s	Off-road motorcycle trai	ls	 Golf fairways 	3
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RopB:	 50	 Not limited	 	 Not limited	 	 Not limited 	
Oshtemo	35	•	0.02	 Somewhat limited: Too sandy	0.02	 Not limited 	
RopC2: Riddles	 50	 Not limited		 Not limited	 	 Not limited	
Oshtemo	35		0.02	 Somewhat limited: Too sandy	0.02	 Not limited 	
RopD2: Riddles	 50 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.96
Oshtemo	35	•	0.02	 Somewhat limited: Too sandy	0.02	 Somewhat limited: Slope	0.96
RoqB: Riddles	 55	 Not limited		 Not limited	 	 Not limited	
Metea	30		0.50	Somewhat limited: Too sandy	0.50	 Not limited 	
RoqC2: Riddles	 55	 Not limited		 Not limited		 Not limited	
Metea	30		0.50	Somewhat limited: Too sandy	0.50	 Not limited 	
RoqD2: Riddles	 50 	 Not limited 		 Not limited 		 Somewhat limited: Slope	0.96
Metea	30		0.50	 Somewhat limited: Too sandy	 0.50	 Somewhat limited: Slope	0.96
SdzA: Selfridge	 50 	•	 0.50 0.44		 0.50 0.44		 0.75
Crosier	 35 			 Very limited: Depth to saturated zone		 Very limited: Depth to saturated zone	 1.00
SdzaB: Selfridge	50 	Too sandy	 0.50 0.44 		'	 Somewhat limited: Depth to saturated zone	0.75
Brems	35	•	0.59	 Somewhat limited: Too sandy	 0.59	 Somewhat limited: Droughty	0.01
SesA: Schoolcraft	80	 Not limited		 Not limited 	 	 Not limited 	

Table 11b.--Recreation--Continued

Map symbol and soil name	 Pct. of map	 	s	 Off-road motorcycle trai	ls	 Golf fairways 	
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SnlA: Southwest	 75 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
TmpA: Tracy	 80	 Not limited 	 	 Not limited 	 	 Not limited 	
TmpB: Tracy	 80	 Not limited 	 	 Not limited 		 Not limited 	
TmpC2: Tracy	80	 Not limited 	 	 Not limited 	 	 Not limited 	
TmpD: Tracy	 80 	 Not limited 	 	 Not limited 		 Somewhat limited: Slope	 0.96
TnwA: Troxel	 80	 Not limited 	 	 Not limited 	 	 Not limited 	
TxuA: Tyner	 85 	:	0.92	 Somewhat limited: Too sandy	0.92	 Somewhat limited: Droughty	0.12
TxuB: Tyner	 85 	:	 0.92	 Somewhat limited: Too sandy	 0.92	 Somewhat limited: Droughty	0.12
TxuC: Tyner	 85 	:	 0.92	 Somewhat limited: Too sandy	0.92	 Somewhat limited: Droughty	0.12
TxuD: Tyner	 85 	:	 0.92	 Somewhat limited: Too sandy 	 0.92	 Somewhat limited: Slope Droughty	0.96
TxuF: Tyner	 80 	Slope	'	 Somewhat limited: Too sandy Slope		 Very limited: Slope Droughty	 1.00 0.12
Uam: Udorthents, loamy	 100 	 Not rated 	 	 Not rated 		 Not rated 	
UdeA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Bainter	40	Not limited		Not limited		Not limited	
UdeB: Urban land Bainter	į			 Not rated Not limited		 Not rated Not limited	
UdeC: Urban land		 		 Not rated		 Not rated	
Bainter	į		į	 Not limited	į	 Not limited	

Table 11b.--Recreation--Continued

and soil name	 Pct. of map		S	 Off-road motorcycle trai 	ls	 Golf fairways 	;
	unit 	İ	Value	 Rating class and limiting features	Value	Rating class and limiting features	Value
UdkA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Brady	 40 		 1.00	 Very limited: Depth to saturated zone	1.00	 Very limited: Depth to saturated zone	
UdzA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Auten	 40 	: -	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00
UeaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Crosier	 40 	: -	 1.00	Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00
UeqA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Gilford	 40 	Depth to saturated zone	 	saturated zone	 1.00 1.00	saturated zone	 1.00 1.00
UewA:	 	 	 	 	 	 	
Urban land	į		İ	Not rated	į	Not rated	
Brems	25	:	 0.59	Somewhat limited: Too sandy	0.59	Somewhat limited: Droughty	0.01
Morocco	 15 	Depth to saturated zone	 	saturated zone	 1.00 0.88	saturated zone	 1.00 0.15
UfbA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Brookston	 40 	Depth to saturated zone	 - 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
UfhA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Coloma	 40 	: -	 1.00 	 Very limited: Too sandy 	 1.00 	 Somewhat limited: Too sandy Droughty	0.50
UfhB: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40 		 1.00 	 Very limited: Too sandy 	 1.00 	 Somewhat limited: Too sandy Droughty 	0.50

Table 11b.--Recreation--Continued

and soil name	Pct. of map unit	 	s	Off-road motorcycle trai	ls	Golf fairways	ı
	i 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UfhC: Urban land	 50	 Not rated 	 	 Not rated 		 Not rated 	
Coloma	40 	:	1.00	 Very limited: Too sandy 	1.00	Somewhat limited: Too sandy Droughty	0.50
UfmA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Coupee	40	Not limited	 	Not limited	İ I	Not limited	İ
UfrA: Urban land	 50	 Not rated 	 	 Not rated 		 Not rated 	
Del Rey	40 	:	 1.00 	Very limited: Depth to saturated zone	1.00	Very limited: Depth to saturated zone	1.00
UftA: Urban land	 50	 Not rated 	 	 Not rated 		 Not rated 	
Elston	40	 Not limited		 Not limited	į	Not limited	
UfzA: Urban land	50	 Not rated		 Not rated		 Not rated	
Mishawaka	45	Somewhat limited: Too sandy	0.04	Somewhat limited: Too sandy	0.04	 Not limited 	
UgaA: Urban land	50	 Not rated		 Not rated		 Not rated	
Morocco	 40 		 1.00 0.88	saturated zone	 1.00 0.88	saturated zone	 1.00 0.15
UglA: Urban land	50	 Not rated		 Not rated		 Not rated	
Osolo	40	•	0.50	Somewhat limited: Too sandy	0.50	 Somewhat limited: Droughty	0.07
UgrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Rensselaer	 40 	Depth to saturated zone	1.00	saturated zone		 Very limited: Ponding Depth to saturated zone	 1.00 1.00
UgsA: Urban land	 50	 Not rated	 	 Not rated 		 Not rated	
Riddles	25	 Not limited		 Not limited		 Not limited	
Oshtemo	 15 		 0.02	 Somewhat limited: Too sandy	0.02	 Not limited 	

Table 11b.--Recreation--Continued

and soil name	Pct. of	 	s	Off-road motorcycle trai	ls	Golf fairways 		
	unit 	'		 Rating class and limiting features	'	 Rating class and limiting features	Value	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	 	
Riddles	25	Not limited		Not limited		Not limited		
Oshtemo	 15 	1	0.02	Somewhat limited: Too sandy	0.02	 Not limited 		
UgvA:	l I		 	 	 	 		
Urban land	50	Not rated	İ	Not rated		 Not rated		
Tyner	 40 	'	 0.92 	 Somewhat limited: Too sandy	 0.92	 Somewhat limited: Droughty	0.12	
UgvB:			į	_		_		
Urban land	50 	Not rated	 	Not rated 	 	Not rated 		
Tyner	40 	1		Somewhat limited: Too sandy 	0.92	Somewhat limited: Droughty	0.12	
UgvC: Urban land		 	į	Not rated		 		
Urban land	50	Not rated		Not rated 		Not rated 		
Tyner	40 	'		Somewhat limited: Too sandy	 0.92 	Somewhat limited: Droughty	0.12	
UgvD: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	 	
Tyner	40 	1	 0.92 	Somewhat limited: Too sandy	0.92	Somewhat limited: Slope Droughty	0.96	
UhmA:	 	 	 	 		 		
Urban land	50 	Not rated	 	Not rated 		Not rated 		
Hillsdale	40	Not limited	l I	Not limited		Not limited		
UhmB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Hillsdale	 40	 Not limited	 	 Not limited		 Not limited		
UhoC:								
Urban land	 50	 Not rated		 Not rated		 Not rated		
Hillsdale	 30	 Not limited	 	 Not limited		 Not limited		
Oshtemo	 15 			 Somewhat limited: Too sandy	 0.01	 Not limited 	 	
UhoD:	 	 	 	 		 		
Urban land	50	Not rated	i I	 Not rated	 	 Not rated		
Hillsdale	 30 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.96	
Oshtemo	 15 			 Somewhat limited: Too sandy 	 0.01 	 Somewhat limited: Slope	 0.96	

Table 11b.--Recreation--Continued

and soil name	Pct. of map	į	s	Off-road motorcycle trai	ls	Golf fairways 		
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value	
	!							
UhpC: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 		
Hillsdale	30	 Not limited 	 	Not limited	 	Not limited	 	
Tracy	15	Not limited	i I	Not limited	i I	Not limited	į Į	
UhpD: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 		
Hillsdale	30	Not limited	; 	Not limited	; 	Somewhat limited:	0.96	
Tracy	 15 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.96	
UhwA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	 	
Martinsville	40	 Not limited 	 	 Not limited 	 	 Not limited 		
UhwB: Urban land	 50	 Not rated		 Not rated		 Not rated	<u> </u> -	
Martinsville	 40 	 Not limited	 	 Not limited	 	 Not limited		
UhwC: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 		
Martinsville	 40 	 Not limited 	 	 Not limited 	 	 Not limited 		
UkaA:	İ	İ	İ	İ	İ		i	
Urban land	50 	Not rated 		Not rated 		Not rated 		
Maumee	40 	Depth to saturated zone	 1.00 1.00 0.50	saturated zone Ponding	 1.00 1.00 0.50	saturated zone Ponding	 1.00 1.00 0.01	
UkeA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Milford	 40 	Depth to saturated zone	1.00	saturated zone	1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	
UkxA: Urban land	 50	 Not rated		 Not rated		 Not rated		
Oshtemo	 40 	!	 0.01	 Somewhat limited: Too sandy	 0.01	 Not limited 	 	
UkxB: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	 	
Oshtemo	40	:	0.01	 Somewhat limited: Too sandy	0.01	 Not limited 		

Table 11b.--Recreation--Continued

	Pct.	:	s	 Off-road motorcycle trai	ls	 Golf fairways		
	map			!				
	unit 	'	Value	 Rating class and limiting features		 Rating class and limiting features	Value	
							 	
UkxC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated		
Oshtemo	 40 	:	 0.01	 Somewhat limited: Too sandy	 0.01	 Not limited 		
UmfB:		 		 				
Urban land	50	Not rated	 	Not rated	 	Not rated	i I	
Riddles	25	Not limited		Not limited		Not limited		
Metea	 15 		 0.50 	 Somewhat limited: Too sandy 	 0.50 	 Not limited 		
UmfC:	İ	İ	İ	İ	İ	İ	į	
Urban land	50 	Not rated 	 	Not rated 	 	Not rated 		
Riddles	25	Not limited	 	Not limited	i I	Not limited	İ	
Metea	 15 		0.50	Somewhat limited: Too sandy	0.50	Not limited		
UmfD:	 	 	 	 				
Urban land	50	Not rated	 	Not rated	 	Not rated	İ	
Riddles	25	 Not limited 	 	 Not limited 	 	Somewhat limited:	0.96	
Metea	 15 	:	 0.50 	 Somewhat limited: Too sandy 	 0.50	 Somewhat limited: Slope	 0.96	
UmpA:	İ							
Urban land	50	Not rated	 	Not rated	i I	Not rated	l I	
Schoolcraft	40	Not limited	 	Not limited	 	Not limited	į	
UmuA:								
Urban land	50 	Not rated	 	Not rated	 	Not rated		
Southwest	40	Very limited:	İ	Very limited:	İ	Very limited:	į	
			1.00		1.00		1.00	
		saturated zone Ponding		saturated zone Ponding		Ponding	1.00	
UmwA:	l I	 	 	 	 	 		
Urban land	50	 Not rated		 Not rated		 Not rated	į	
Tracy	40	 Not limited		 Not limited		 Not limited		
UmwB:	l I	 	 	 		 		
Urban land	50	Not rated	 	 Not rated 	 	 Not rated 	 	
Tracy	40	Not limited	 	 Not limited		 Not limited		
UmwC:	! 	 	 	 	 	[
Urban land	50 	Not rated	 	 Not rated 	 	 Not rated 	i i	
Tracy	40	 Not limited 	 	 Not limited 	 	 Not limited 		

Table 11b.--Recreation--Continued

Urban land	
limiting features limiting limiting ng limiting	
Urban land	
UnxA:	
UmxA: Urban land	
Urban land	0.96
Urban land	
UnoA:	
Urban land	
Urban land	l
Depth to saturated zone urated zone Saturated zone	
Urban land 50 Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Not rated Depth to Depth to Saturated zone rated Not rated	1.00
Urban land 50 Not rated ated Not rated	ļ
Crosier	
Crosier	 0.19
UntA: UntA: Urban land	
UntA: Urban land	 1.00
Urban land	:
Wunabuna, drained 40 Very limited: Very limited	
Depth to 1.00 Depth to 1.00 Depth to saturated zone lower contains lower co	
saturated zone satu	
Ponding 1.00 Ponding 1.00 Ponding	1.00
Udorthents, rubbish- 100 Not rated Not	1.00
W:	
Water	
WcnAI:	
Waterford 80 Very limited: Very limited: Very limited: Depth to 1.00 Depth to 1.00 Flooding	
Depth to 1.00 Depth to 1.00 Flooding	i
	1.00
Bacaracca Zone Bacaracca Zone Depth to	1.00
Flooding 0.40 Flooding 0.40 saturated zone	·
WoaA:	
Williamstown 85 Not limited Not limited Somewhat limited:	
Depth to	0.19
Williamstown 85 Not limited Not limited Somewhat limited:	
Depth to	0.19

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit		.s	Off-road motorcycle trai 	ls	Golf fairways 		
	 	Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
	İ		i		i		i	
WoaC2:	İ		į		į	İ	į	
Williamstown	80 	Not limited 		Not limited 		Somewhat limited: Depth to saturated zone	0.19	
WobB:	 	 		 		 		
Williamstown	50 	Not limited 		Not limited 		Somewhat limited: Depth to saturated zone	0.19	
Crosier	30	 Very limited:		 Very limited:		 Very limited:		
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00	
	İ	saturated zone		saturated zone		saturated zone		
WrxAN:	 	 		 		 		
Wunabuna, drained	85	 Very limited:	i	 Very limited:	i	Very limited:	i	
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00	
	İ	saturated zone	İ	saturated zone	İ	saturated zone	į	
	İ	Ponding	1.00	Ponding	1.00	Ponding	1.00	
WtbA:	 	 		 		 		
Whitaker	75	 Very limited:	i	 Very limited:	i	 Very limited:	i	
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00	
	İ	saturated zone		saturated zone		saturated zone		
WujB:	 	 		 		 		
Williamstown	45	Not limited	i	Not limited	i	Somewhat limited:	i	
	i	İ	i		i	Depth to	0.19	
						saturated zone		
Moon	 40	 Somewhat limited:		 Somewhat limited:		 Somewhat limited:		
	i	Too sandy	0.59	Too sandy	0.59	Depth to	0.03	
	i		i		i	saturated zone	i	

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

	1			f 1-1-1-				l n . e e 4 . :	1 1-1-1	
Man sumbal	l	I Pe		for habita	at elemen	ts	1	Potentia.	l as habit	tat for
Map symbol and soil name	 Grain	 Grasses	Wild herba-	 Hardwood	Conif	 Wetland	 Shallow	 Openland	 Woodland	 Wotland
and soll name	and seed								woodland wildlife	
	crops	and legumes	ceous plants	trees	erous plants	plants	water areas	wildile	wildile	wildlife
	CIOPS	l	prants	1	prants	1	areas	l	l	l
AahAK:	 	l I	 	 	 	 	 	 	 	l I
Abscota	 Fair	 Fair	Good	Good	 Good	Poor	 Very	 Fair	 Good	 Very
ADSCOCA	raii	raii	0000	0000	GOOG	1001	poor.	raii	GOOG	poor.
	 	 	l I	 	 	 	poor.	 	 	poor.
AatAN:	! 	 	! 	! 	 	! 	 	! 	 	
Ackerman, drained-	Poor	Poor	Poor	Good	Poor	Good	Good	Poor	Very	Good.
iioiioliiidii, dl'aliiod									poor.	
	! 	' 	İ		! 		İ	! 		!
AbhAN:	İ		İ	İ		i	i	İ		
Adrian, drained	Fair	Poor	Poor	Good	Poor	Good	Good	Poor	Very	Good.
	İ	İ	İ	İ	İ	İ	i	İ	poor.	İ
	i İ	İ	į	İ	İ	İ	i	İ	 	İ
AbhAU:				ĺ		ĺ	İ			
Adrian, undrained-	Very	Poor	Very	Very	Very	Good	Good	Very	Very	Good.
	poor.		poor.	poor.	poor.	ĺ	İ	poor.	poor.	
ApuAN:										
Antung, drained	Fair	Poor	Poor	Good	Poor	Good	Good	Poor	Very	Good.
									poor.	
AxvA:										
Auten	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
BaaA:										
Bainter	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
							poor.			poor.
BaaB:						 D = ===				
Bainter	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	 	l I	 	 	 	 	poor.	 	l I	poor.
BaaC2:	 	 	l I	 	 	 	 	 	 	
Bainter	Good	 Good	Good	Good	 Good	Poor	Very	Good	Good	 Very
Daintei							poor.			poor.
	 	 	 	 	 	 	POOL:	 	 	POOL:
BbmA:	İ		İ	İ		i	i	İ		
Baugo	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
-	i İ	İ	į	İ	İ	i	i	İ	İ	İ
BmgA:	İ	İ	Ì	İ	İ	İ	į	İ	İ	İ
Blount	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
BshA:										
Brady	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
BsxA:										
Brems	Poor	Fair	Fair	Poor	Poor	Poor		Fair	Poor	Poor.
							poor.			
Morocco	Poor	Fair	Good	Good	Fair	Fair		Fair	Fair	Poor.
							poor.			
74-3					 				 	
BteA:	 D	 	l made	 D = = = :	 T	 D = = =		 	 D	 D = ===
Brems	roor	Fair	Fair	Poor	Poor	Poor		Fair	Poor	Poor.
	 	 	I I	 	 	 	poor.	l I	 	
BuuA:	 	 	I I	 	 	 	I I	l I	 	
Brookston	 Fair	 Fair	 Fair	 Good	 Fair	Good	 Good	 Fair	 Fair	Good.
DIOONS COII		1			1					5000a.
	I	I	I	I	I	I	I	I	I	I

Table 12.--Wildlife Habitat--Continued

		Po	otential	for habita	at elemen	ts		Potentia	l as habi	tat for
Map symbol			Wild		1					
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	
			. <u>-</u>			İ	İ			<u> </u>
CmbAI: Cohoctah	 Poor	 Fair	 Fair	 Good	 Fair	 Good	 Good	 Fair	 Fair	 Good.
CnbA:	! 	! 	! 		İ				! 	!
Coloma	Fair 	Fair 	Fair 	Fair 	Good 	Very poor.	Very poor.	Fair 	Fair 	Very poor.
CnbB: Coloma	 Fair 	 Fair 	 Fair 	 Fair 	 Good 	 Very poor.	 Very poor.	 Fair 	 Fair 	 Very poor.
CnbC: Coloma	 Poor 	 Fair 	 Fair 	 Fair 	 Good 	 Very poor.	 Very poor.	 Fair 	 Fair 	 Very poor.
CnbD: Coloma	 Poor 	 Fair 	 Fair 	 Fair 	 Good 	 Very poor.	 Very poor.	 Fair 	 Fair 	 Very poor.
CrrA: Coupee	 Good 	 Good 	 Fair 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
CvdA: Crosier	 Fair 	 Good	 Good 	 Good 	 Good 	 Fair 	 Fair 	 Good 	 Good	 Fair.
CvdB: Crosier	 Fair 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Fair 	 Good 	 Very poor.
CwkA: Crumstown	 Fair 	 Fair 	 Good 	 Good 	 Good 	 Poor 	 Very poor. 	 Fair 	 Good 	 Very poor.
CwkB: Crumstown	 Fair 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Fair 	 Very poor.
DcrA: Del Rey	 Fair 	 Good	 Good	 Good	 Good	 Fair 	 Fair 	 Good	 Good	 Fair.
EchAN: Edwards, drained	 Poor 	 Poor 	 Poor 	 Good 	 Poor 	 Good 	 Good 	 Poor 	 Very poor.	 Good.
EchAU: Edwards, undrained	 Very poor.	 Poor 	 Very poor.	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	 Very poor.	 Good.
EcrAN: Edselton, drained-	 Poor 	 Poor 	 Poor 	 Good 	 Poor 	 Good 	 Good 	 Poor 	 Very poor.	 Good.
EcrAU: Edselton, undrained	 Very poor.	 Poor 	 Very poor.	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	 Very poor.	 Good.
EmeA: Elston	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor. 	 Good 	 Good 	 Very poor.

Table 12.--Wildlife Habitat--Continued

Man gymbol	ļ	P:	otential Wild	for habita	at elemen	ts	1	Potentia	l as habi	tat for
Map symbol and soil name	 Grain and seed crops	Grasses and legumes	herba- ceous	 Hardwood trees	Conif- erous	 Wetland plants	 Shallow water areas	Openland wildlife	 Woodland wildlife 	
GczA:	 Fair 	 Fair 	 Fair 	 Fair 	 Fair 	 Good	 Good	 Fair 	 Fair 	 Good.
GdnA: Gilford	 Fair 	 Poor 	 Poor 	 Poor	 Poor 	 Good	 Good 	 Fair 	 Poor 	 Good.
HfbAN: Henrietta, drained	 Very poor.	 Poor 	 Poor 	 Poor 	 Poor 	 Good 	 Good 	 Poor 	 Fair 	 Good.
HfbAU: Henrietta, undrained	 Very poor.	 Poor 	 Very poor.	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	 Very poor.	 Good.
HkkA: Hillsdale	 Good 	 Good 	 Good	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
HkkB: Hillsdale	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
HknC2: Hillsdale	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
Oshtemo	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
HknD2: Hillsdale	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
Oshtemo	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
HkpC2: Hillsdale	 Fair 	 Good 	 Good	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
Tracy	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
HkpD2: Hillsdale	 Poor 	 Fair 	 Good	 Good	 Good	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
Tracy	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
HtbAN: Houghton, drained-	 Fair 	 Poor 	 Poor 	 Good 	 Poor 	 Good 	 Good 	 Poor 	 Very poor.	 Good.
HtbAU: Houghton, undrained	 Very poor.	 Poor 	 Very poor.	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	 Very poor.	 Good.
JaaAK: Jamestown	 Fair 	 Good 	 Fair 	 Good 	 Good 	 Fair 	 Fair 	 Fair 	 Good 	 Fair.

Table 12.--Wildlife Habitat--Continued

	I	D	otontial	for habit	at alaman	+ a		Dotontio	l ag habit	tat for
Map symbol and soil name	 Grain and seed	Grasses	Wild	for habit		 Wetland plants	 Shallow water	 Openland	l as habit Woodland wildlife	 Wetland
	crops	legumes	plants	L	plants		areas			
MfaA: Martinsville	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
MfaB2: Martinsville	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
MfaC2: Martinsville	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
MfrAN: Madaus, drained	 Poor 	 Poor 	 Poor 	 Good 	 Poor 	 Good 	 Good 	 Poor 	 Very poor.	 Good.
MfrAU: Madaus, undrained-	 Very poor.	 Poor 	 Very poor.	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	 Very poor.	 Good.
MgcA: Maumee	 Fair 	 Poor 	 Poor 	 Poor 	 Poor 	 Good 	 Good 	 Poor 	 Poor 	 Good.
MgdAN: Martisco, drained-	 Very poor. 	 Poor 	 Poor 	 Good 	 Poor 	 Good 	 Good 	 Poor 	 Poor 	 Good.
MhaA: Maumee	 Poor 	 Fair 	 Fair 	 Good	 Fair 	 Fair 	 Good 	 Fair 	 Fair 	 Fair.
MhbA: Maumee	 Poor 	 Fair 	 Fair 	 Good 	 Fair 	 Fair 	 Good 	 Fair 	 Fair 	 Fair.
MmbC2: Miami	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
MmdC3: Miami	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
MmdD3: Miami	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
MouA: Milford	 Fair 	 Fair 	 Fair 	 Good 	 Fair 	 Good	 Good 	 Fair 	 Fair 	 Good.
MsaA: Mishawaka	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.
MtsB2: Morley	 Good 	 Good 	 Fair 	 Good 	 Good 	 Poor 	 Very poor. 	 Good 	 Good 	 Very poor.
MtsC2: Morley	 Fair 	 Good 	 Fair 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
MubD3: Morley	 Poor 	 Fair 	 Fair 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.

Table 12.--Wildlife Habitat--Continued

		P	otential	for habita	at elemen	ts		Potentia	l as habi	tat for
Map symbol		1	Wild		1		1	İ		1
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlife
	crops	legumes	plants	<u>i</u>	plants	<u>i</u>	areas	<u>i</u>	İ	İ
MvhAN:										
Moston, drained	Poor	Poor	Poor	Good	Poor	Good	Good	Fair	Poor	Good.
MvhAU:			 D = ===				Good		 D	
Moston, undrained-		Very	Poor	Very poor.	Very	Good	GOOG	Poor	Poor	Good.
	poor.	poor.	 	poor.	poor.	1	l I	1	 	
MvkA:	 	 	 		l I		1		 	l I
Morocco	Poor	Fair	Good	Fair	Fair	Fair	Very	Fair	Fair	Poor.
	İ	i	i	İ	İ	i	poor.	İ	İ	i
	į	į	į	İ	į	į	İ	İ	İ	İ
MwzAN:	ĺ	İ	İ		ĺ	İ	İ	İ		ĺ
Muskego, drained	Poor	Poor	Poor	Good	Poor	Good	Good	Fair	Poor	Good.
MwzAU:										
Muskego, undrained	Very	Very	Poor	Very	Very	Good	Good	Poor	Poor	Good.
	poor.	poor.		poor.	poor.					
OkrA:	Doom	 Bodo				1770		 Bodo	 Good	
Oshtemo	POOT	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
	 	l I	 	1	 	poor.	poor.	l I	l I	poor.
OkrB:					 				 	
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
	İ	i	i	İ	İ	poor.	poor.	İ	İ	poor.
	İ	į	İ	İ	Ì	į	İ	İ	İ	İ
OkrC2:	ĺ	İ	İ		ĺ	İ	İ	İ		ĺ
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
OkrD:										!
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
OlcA:	 	 	l I		 		1	1	 	l I
Oshtemo	 Good	Good	Good	Good	Good	Poor	 Very	Good	 Good	 Very
OBITECINO							poor.			poor.
					! 	İ		İ	! 	
OlcB:	İ	i	<u> </u>	İ	İ	i	i	İ		İ
Oshtemo	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	ĺ		İ		ĺ	İ	poor.	İ	ĺ	poor.
OlcC2:										
Oshtemo	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor.	poor.			poor.
01.5										
OlcD:	 De em	 Bodo				177		 Bodo		
Oshtemo	POOL	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very
	 	 	 		l I	poor.	poor.		 	poor.
OmgA:					! 	İ	İ	İ	! 	!
Osolo	Poor	Fair	Good	Fair	Fair	Poor	Very	Fair	Good	Very
	i	į	į	İ	į	i	poor.	İ	İ	poor.
PaaAN:										
Palms, drained	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
		[
PaaAU:										
Palms, undrained	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Dmm						1			 	
Pmg:	[[I I	1	1	[[1	I I	1	 	[[
Pits, gravel.	I I	I I	1	1	I I	1	1	1	 	I I
	I	I	I	I	I	I	I	I	I	I

Table 12.--Wildlife Habitat--Continued

	1	D	otontial	for habita	at alaman	±0		Botontia	l as habi	tat for
Map symbol			Wild				1	FOCESTICIA.	as nabi	
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	 Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlife
	crops	legumes	plants		plants		areas			
PxlA:					 				 	
Psammaquents.	 	 	l I	 	 		 	l I	 	
Pxo:			 		 			 		
Psamments.	į	į	į	į	İ	İ	į	į	İ	İ
QuiA:										
Quinn	Poor	Fair	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
QujA:	 		 		 -			 	 	
Quinn	Poor	 Fair	Poor	Fair	 Fair	Good	Fair	Poor	 Fair	 Fair.
2										
RenA:	į	į	İ	į	į	İ	į	İ	İ	İ
Rensselaer	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
			[<u> </u>			[
ReyA:										
Rensselaer	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
RopA:	 	 	l I	 	 	 	 	l I	 	l I
Riddles	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	į	į	İ	į	į	İ	poor.	İ	İ	poor.
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
RopB:	 		 		 -			 	 	
Riddles	Good	Good	Good	Good	 Good	Poor	 Very	 Good	 Good	 Very
							poor.			poor.
	į	į	İ	į	į	İ	į	İ	İ	i -
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
RopC2: Riddles	Cood	Good	 Good	Good	 Good	Poor	 Very	 Good	 Good	 Very
Kiddies	0000		0000		6000		poor.	0000	0000	poor.
			İ					İ		
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
RopD2: Riddles					 a = 4	 Beem			 Good	
RIGGIES	G00a	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Oshtemo	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
		!					!			
RoqB:	 To do:					 				
Riddles	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
					 				 	1001.
Metea	Fair	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
	ĺ	ĺ			ĺ	poor.	poor.			poor.
		[!		[!	
RoqC2:	 									
Riddles	rair 	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
	 		i I		! 	2001.	1001.	i I	! 	1001.
Metea	Fair	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
		İ		İ		poor.	poor.			poor.
RoqD2:										
Riddles	Poor	Fair	Good	Good	Good	Very		Fair	Good	Very
	I I	I I	I I	I I	I I	poor.	poor.	I I	I I	poor.
	I	I	I	I	I	1	I	I	I	I

Table 12.--Wildlife Habitat--Continued

Man as 3 3	ļ	P		for habit	at elemen	ts	1	Potential as habitat for-			
Map symbol and soil name	 Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	 Hardwood trees	Conif- erous plants	 Wetland plants 	 Shallow water areas	 Openland wildlife 	 Woodland wildlife 	1	
RoqD2: Metea	 Fair 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.	
SdzA: Selfridge	 Fair	 Fair	 Good	 Good	 Good	 Fair	 Fair	 Fair	 Good	 Fair.	
Crosier	 Fair 	 Good 	 Good 	 Good 	 Good 	 Fair 	 Fair	 Good 	 Good 	 Fair. 	
SdzaB: Selfridge	 Fair 	 Fair 	 Good	 Good	 Good 	 Poor	 Poor	 Fair 	 Good	 Poor. 	
Brems	Poor	 Fair 	Fair	Poor	Poor	Poor	Very	Fair	Poor	Poor.	
SesA: Schoolcraft	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.	
SnlA: Southwest	 Fair 	 Fair 	 Fair 	 Good	 Fair 	 Good	 Good	 Fair	 Fair	 Good.	
TmpA: Tracy	 Good 	 Good 	 Good	 Good	 Good	 Poor	 Very poor.	 Good	 Good	 Very poor.	
TmpB: Tracy	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.	
TmpC2: Tracy	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.	
TmpD: Tracy	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.	
TnwA: Troxel	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.	
TxuA: Tyner	 Poor 	 Poor 	 Fair 	 Poor	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.	
TxuB: Tyner	 Poor 	 Poor 	 Fair 	 Poor	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor	 Very poor.	
TxuC:	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.	
TxuD:	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.	
TxuF: Tyner	 Very poor.	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.	

Table 12.--Wildlife Habitat--Continued

	1	Po	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol	'		Wild							
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	•	
Uam: Udorthents, loamy.	 	 	 	 	 	 	 	 	 	
UdeA: Urban land.		 	 		 			 	 	
Bainter	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	Very poor.	 Good 	 Good 	 Very poor.
UdeB: Urban land.	 	 	 	 	 	 	 	 	 	
Bainter	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UdeC: Urban land.	 	 	 	 	 	 	 	 	 	
Bainter	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UdkA: Urban land.	 	 	 	 	 	 	 	 	 	
Brady	 Fair 	 Good 	 Good 	 Good 	 Good 	 Fair 	 Fair 	 Good 	 Good 	 Fair.
UdzA: Urban land.	 	 	 	 	 	 	 	 	 	
Auten	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
UeaA: Urban land.	 	 	 	 	 	 	 	 	 	
Crosier	Fair 	Good 	Good 	Good 	Good 	Poor 	Very poor.	Fair 	Good 	Very poor.
UeqA: Urban land.	 	 	 	 	 	 	 	 	 	
Gilford	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
UewA: Urban land.	 	 	 	 	 	 	 	 	 	
Brems	Poor 	Fair 	Fair 	Poor 	Poor 	Poor 	Very poor.	Fair 	Poor 	Poor.
Morocco	Poor	 Fair 	 Good 	Good	 Fair 	Fair	Very poor.	 Fair 	 Fair 	Poor.
UfbA: Urban land.	 	 	 	 	 	 	 	 	 	
Brookston	Fair	 Fair 	 Fair 	Good	 Fair 	Good	Good	 Fair 	 Fair 	Good.
UfhA: Urban land.	 	 	 	 	 	 	 	 	 	
Coloma	Fair 	 Fair 	 Fair 	 Fair 	 Good 	Very poor.	Very poor.	 Fair 	 Fair 	Very poor.

Table 12.--Wildlife Habitat--Continued

	ı			for bobis				Detentio	l on bobd	f
Map symbol	l	I P	Wild	for habita	at elemen	ts 		Potentia	l as habi	tat for
and soil name	 Grain and seed	 Grasses and	herba-	 Hardwood trees	Conif- erous	 Wetland plants	 Shallow water	 Openland wildlife	 Woodland wildlife	
	crops	legumes	plants		plants	<u> </u>	areas			<u> </u>
UfhB: Urban land.	 	 	 	 	 	 	 	 	 	
Coloma	 Fair 	 Fair 	 Fair 	 Fair 	 Good 	 Very poor.	 Very poor.	 Fair 	 Fair 	 Very poor.
UfhC: Urban land.	 	 	 	 	 	 	 	 	 	
Coloma	 Poor 	 Fair 	 Fair 	 Fair 	 Good 	 Very poor.	 Very poor.	 Fair 	 Fair 	 Very poor.
UfmA: Urban land.	 	 	 	 	 	 		 	 	
Coupee	 Good 	 Good 	 Fair 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UfrA: Urban land.	 	 	 	 	 	 		 	 	
Del Rey	 Fair 	 Good 	 Good 	 Good 	 Good 	 Fair 	 Fair 	 Good 	 Good 	 Fair.
UftA: Urban land.	 	 	 	 	 	 	 	 	 	
Elston	Good 	Good 	Good 	Good 	Good 	Poor	Very poor.	Good 	Good 	Very poor.
UfzA: Urban land.	 	 	 - -	 	 	 	 	 	 	 - -
Mishawaka	Poor	 Poor 	 Fair 	Poor	 Poor 	Very poor.	Very poor.	Poor	 Poor 	Very poor.
UgaA: Urban land.	 	 	 		 				 	
Morocco	 Poor 	 Fair 	 Good 	 Fair 	 Fair 	 Fair 	 Very poor.	 Fair 	 Fair 	 Poor.
UglA: Urban land.	 	 	 	 	 	 		 	 	
Osolo	 Poor 	 Fair 	 Good 	 Fair 	 Fair 	 Poor 	 Very poor.	 Fair 	 Good 	 Very poor.
UgrA: Urban land.	 	 	 	 	 	 	 	 	 	
Rensselaer	 Fair 	 Fair 	 Fair 	 Good 	 Fair 	 Good 	 Good 	 Fair 	 Fair 	 Good.
UgsA: Urban land.	 	 	 	 	 			 	 	
Riddles	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
Oshtemo	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.

Table 12.--Wildlife Habitat--Continued

	<u> </u>	P	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol	'		Wild		1				<u> </u>	l
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	
UgsB: Urban land.	 	 	 	 	 	 	 	 	 	
Riddles	Good	 Good 	 Good 	Good	 Good 	Poor	Very poor.	Good	 Good 	 Very poor.
Oshtemo	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
UgvA: Urban land.	 	 	 	 	 	 		 	 	
Tyner	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	Very poor.	Very poor.	 Poor 	 Poor 	 Very poor.
UgvB: Urban land.	 	 	 	 	 	 	 	 	 	
Tyner	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.
UgvC: Urban land.	 	 	 	 	 	 	 	 	 -	 -
Tyner	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.
UgvD: Urban land.	 	 	 -	 	 -	 	 	 	 -	
Tyner	 Poor 	 Poor 	 Fair 	 Poor 	 Poor 	 Very poor.	 Very poor.	 Poor 	 Poor 	 Very poor.
UhmA: Urban land.	 	 	 	 	 	 	 	 	 -	
Hillsdale	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UhmB: Urban land.	 	 	 	 	 	 	 	 	 	
Hillsdale	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UhoC: Urban land.	 	 	 	 	 	 	 	 	 	
Hillsdale	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
Oshtemo	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
UhoD: Urban land.	 	 	 	 	 	 	 	 	 	
Hillsdale	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
Oshtemo	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor. 	 Fair 	 Good 	 Very poor.

Table 12.--Wildlife Habitat--Continued

	I	P	otential	for habit	at elemen	ts		Potentia	l as habi	tat for
Map symbol		1	Wild		1	1			1	
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlife
	crops	legumes	plants	į	plants	į	areas	į	İ	İ
UhpC:										
Urban land.										
Hillsdale	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor.	poor.			poor.
Tracy	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor.	poor.			poor.
UhpD:										
Urban land.										
Hillsdale	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
Tracy	Poor	Fair	Good	Good	Good	Very	Very	Fair	Good	Very
						poor.	poor.			poor.
UhwA:		!								
Urban land.		!								
Martinsville	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
							poor.			poor.
_										
UhwB:										
Urban land.										
			-	-				-		
Martinsville	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
							poor.			poor.
a										
UhwC: Urban land.						1			 	
ordan land.		1			1	1	1		 	
Martinsville	Poin	Good	Good	Good	 Good	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	17022	Good	 Good	170~~
Marcinsville	Fair	GOOG	GOOG	GOOG	GOOG	Very	Very	GOOG	Good	Very
	 	 	1	1	 	poor.	poor.	I I	 	poor.
UkaA:		1	1	 	 	1	l I	1	 	l I
Urban land.		1	1	 	 	1	l I	1	 	l I
orban rana.		 					l I		 	
Maumee	 Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
naumce										
UkeA:			i i				l I	i i	! 	!
Urban land.			i i				l I	i i	! 	!
							i i	İ	! 	!
Milford	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
UkxA:		İ	İ		İ	i	İ	İ		İ
Urban land.		i	i	i	i	i	i	i	İ	İ
	<u> </u>	i	İ	İ	i	i	i	İ	i	İ
Oshtemo	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	<u> </u>	i	İ	İ	i	i	poor.	İ	i	poor.
	į	i	İ	İ	i	i	i -	İ	i	i -
UkxB:	į	i	İ	İ	i	i	İ	İ	İ	İ
Urban land.	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
Oshtemo	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very
	İ	İ	İ	İ	İ	İ	poor.	İ	İ	poor.
	į	i i	i	İ	i	İ	i -	į	İ	
UkxC:	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
Urban land.	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
Oshtemo	Fair	Good	Good	Good	Good	Very	Very	Good	Good	Very
						poor.	poor.			poor.

Table 12.--Wildlife Habitat--Continued

	I	Pr	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol	 	<u>-``</u>	Wild							
and soil name	Grain and seed crops	Grasses and legumes	herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	. –	 Woodland wildlife 	
UmfB: Urban land.	 	 	 	 	 	 	 	 	 	
Riddles	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
 Metea 	 Fair 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
UmfC: Urban land.		 			 		 	 	 	
Riddles 	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
Metea	 Fair 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
UmfD: Urban land.	 	 	 	 	 	 	 	 	 	
Riddles	 Poor 	 Fair 	 Good	 Good 	 Good 	Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
Metea 	 Fair 	 Fair 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Fair 	 Good 	 Very poor.
UmpA: Urban land.	 	 	 	 	 	 	 	 	 	
Schoolcraft	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UmuA: Urban land.	 	 	 	 	 	 	 	 	 	
Southwest	 Fair 	 Fair 	 Fair 	 Good 	 Fair 	 Good 	 Good 	 Fair 	 Fair 	 Good.
UmwA: Urban land.	 	 	 	 	 	 	 	 	 	
Tracy	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good 	Very poor.
UmwB: Urban land.	 	 			 		 	 	 	
Tracy	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor.	 Good 	 Good 	 Very poor.
UmwC: Urban land.	 	 	 	 	 	 	 	 	 	
 Tracy 	 Fair 	 Good 	 Good 	 Good 	 Good 	: -	 Very poor.	 Good 	 Good 	 Very poor.
UmwD: Urban land.	 	 	 	 	 	 	 	 	 	
Tracy 	 Poor 	 Fair 	 Good 	 Good 	 Good 	 Very poor. 	 Very poor. 	 Fair 	 Good 	 Very poor.

Table 12.--Wildlife Habitat--Continued

	I	P	otential	for habita	at elemen	ts		Potentia	l as habit	tat for
Map symbol	'		Wild							
and soil name	Grain	Grasses and legumes		 Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife		
UmxA: Urban land.	 	 	 	 	 	 	 	 	 	
Troxel	Good 	Good	Good	Good	Good	Poor	Very poor.	Good 	Good	Very poor.
UnoA: Urban land.	 	 	 	 	 	 	 	 	 	
Whitaker	 Fair 	Good	Good	Good	Good	 Fair 	 Fair 	Good	Good	 Fair.
UnqB: Urban land.	 	 	 	 	 	 	 	 	 	
Williamstown	Good 	Good 	Good 	Good 	Good 	Very poor.	Very poor.	Good 	Good 	Very poor.
Crosier	 Fair 	 Good 	 Good 	 Good 	 Good 	Poor	Very poor.	 Fair 	 Good 	Very poor.
UntA: Urban land.	 	 	 	 	 	 	 	 	 	
Wunabuna, drained-	 Fair 	 Fair 	 Fair 	Good	 Fair	Good	Good	 Fair 	 Fair 	Good.
Usl: Udorthents, rubbish.	 	 	 	 	 	 	 	 	 	
W: Water.	 	 	 	 	 	 	 	 	 	
WcnAI: Waterford	 Very poor.	 Poor 	 Fair 	 Good 	 Good 	 Fair 	 Poor 	 Poor 	 Fair 	 Poor.
WoaA: Williamstown	 Good	 Good	 Good	 Good	 Good	 Poor	 Poor	 Good	 Good	 Poor.
WoaB2: Williamstown	 Good 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Poor 	 Good 	 Good 	 Very poor.
WoaC2: Williamstown	 Fair 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
WobB: Williamstown	 Good 	 Good 	 Good 	 Good 	 Good 	 Very poor.	 Very poor.	 Good 	 Good 	 Very poor.
Crosier	 Fair 	 Good 	 Good 	 Good 	 Good 	 Poor 	 Very poor. 	 Fair 	 Good 	 Very poor.
WrxAN: Wunabuna, drained-	 Fair 	 Fair 	 Fair 	 Good 	 Fair 	 Good 	 Good 	 Fair 	 Fair 	 Good.
WtbA: Whitaker	 Fair 	 Good	 Good	 Good	 Good	 Fair 	 Fair 	 Good	 Good	 Fair.

Table 12.--Wildlife Habitat--Continued

		P	otential	for habita	at elemen	ts		Potentia	l as habi	tat for-
Map symbol			Wild							
and soil name	Grain	Grasses	herba-	Hardwood	Conif-	Wetland	Shallow	Openland	Woodland	Wetland
	and seed	and	ceous	trees	erous	plants	water	wildlife	wildlife	wildlif
	crops	legumes	plants		plants		areas			
√ujB:										
Williamstown	Good	Good	Good	Good	Good	Very	Very	Good	Good	Very
			ļ.			poor.	poor.	[poor.
Moon	 Fair	 Fair	 Good	Good	 Good	Poor	 Very	 Fair	 Good	 Very
							poor.			poor.
	I	I	I	1	I	I	I	1	I	I

Table 13a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia buildings 	ıl
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
- 1							
AahAK: Abscota	 80 	 Very limited: Flooding 	 1.00 	 Very limited: Flooding Depth to saturated zone	 1.00 0.95	 Very limited: Flooding 	 1.00
AatAN:	 	 		 		 	
Ackerman, drained	85 	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00
AbhAN:	i	İ	į	İ	į	į	į
Adrian, drained	75 	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 1.00		 1.00 1.00 1.00 	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 1.00
AbhAU:	 	 	1	 	1	 	l I
Adrian, undrained	 75 	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 1.00	Very limited: Ponding Subsidence Depth to saturated zone	 1.00 1.00 1.00	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 1.00
ApuAN:	İ		İ		İ	İ	i
Antung, drained	75 	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00
AxvA:			İ		İ		i
Auten	82 	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50
BaaA: Bainter	 85 	 Not limited	 	 Not limited 	 	 Not limited 	
BaaB: Bainter	 85 	 Not limited 	 	 Not limited 	 	 Not limited 	
BaaC2: Bainter	 85 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	

Table 13a.--Building Site Development--Continued

Map symbol and soil name	 Pct. of	Dwellings witho	ut	Dwellings with basements		 Small commercia buildings	1
	map						
	unit 	'	Value	Rating class and limiting features	Value	 Rating class and limiting features	Value
							[
BbmA:							
Baugo	85	<u>. </u>	1.00	Very limited: Depth to	1.00	Very limited: Depth to	1.00
	 	saturated zone	1	saturated zone	1.00	saturated zone	1.00
	i I		0.50	Bacaracca Zone	i	Shrink-swell	0.50
	İ		İ	İ	i		
BmgA:	İ		į	İ	į	İ	j
Blount	85	Very limited:		Very limited:		Very limited:	
			1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
BshA:	 	 	l l	 	1	 	1
Brady	90	 Verv limited:	i	Very limited:	i	 Very limited:	
	Ì		1.00	Depth to	1.00	Depth to	1.00
	į	saturated zone	į	saturated zone	į	saturated zone	į
BsxA:							
Brems	50	Not limited		Very limited:	'	Not limited	
		 		Depth to	1.00		
	1	 	l I	saturated zone		 	l I
Morocco	1 40	 Very limited:		 Very limited:	i	 Very limited:	1
		<u>. </u>	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone	i	saturated zone	i	saturated zone	i
BteA:							
Brems	80	Not limited	ļ	Very limited:		Not limited	
		 		Depth to saturated zone	1.00	 	
	l I	 	l l	saturated zone	l I	 	1
BuuA:	İ				i	 	
Brookston	80	Very limited:	İ	Very limited:	į	Very limited:	i
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CmbAI:	l I	 	l I	 	l I	 	1
Cohoctah	75	 Verv limited:	i	Very limited:	i	 Very limited:	
	Ì		1.00	Flooding	1.00	Flooding	1.00
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
					!		
CnbA:							
Coloma	85	Not limited	1	Not limited		Not limited	1
CnbB:	1	 	l I	 	i	 	1
Coloma	85	Not limited	i	Not limited	i	Not limited	i
	į	İ	į	İ	į	İ	į
CnbC:							
Coloma	85	Not limited		Not limited		Somewhat limited:	
						Slope	0.88
CnbD:		 		 	1	 	
Coloma	 85	 Somewhat limited:			i	 Very limited:	1
			0.96		0.96		1.00
	İ	 	İ	į	İ	i -	i
CrrA:							
Coupee	85	'		Somewhat limited:	'	Somewhat limited:	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
				I		I	1

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map	Dwellings witho basements	ut	Dwellings with basements		Small commercia buildings 	11
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value	 Rating class and limiting features	Value
G43							
CvdA: Crosier	 85 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CvdB:	 	 		 	 	 	
Crosier	80 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CwkA: Crumstown	 80 	 Not limited 		 Somewhat limited: Depth to saturated zone	 0.24	 Not limited 	
CwkB:	 	 		 	 	 	
Crumstown	80 	Not limited -	 	Somewhat limited: Depth to saturated zone	0.24	Not limited -	
DcrA:	 		 			 	
Del Rey	85 	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50
	İ		İ				
EchAN: Edwards, drained	 80 	 Very limited: Ponding	 1.00	 Very limited: Ponding	 1.00	 Very limited: Ponding	 1.00
	İ	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	 	Depth to saturated zone	1.00 	Depth to saturated zone	1.00 	Depth to saturated zone	1.00
EchAU:							
Edwards, undrained	 75	 Very limited:		 Very limited:		 Very limited:	
	!	Ponding	1.00	Ponding	1.00	Ponding	1.00
	 	Subsidence Depth to	1.00	Subsidence Depth to	1.00	Subsidence Depth to	1.00
		saturated zone		saturated zone		saturated zone	
EcrAN:		 		 		 	
Edselton, drained	70			Very limited:	'	Very limited:	
	 	Ponding Subsidence	1.00 1.00	,	1.00		1.00
		Depth to	1.00		1.00	Depth to	1.00
	l I	saturated zone	 	saturated zone		saturated zone	
EcrAU:	į		į				
Edselton, undrained-	70 	Very limited: Ponding	 1.00	Very limited: Ponding	 1.00	Very limited: Ponding	1.00
	 	Subsidence	1.00		1.00	Subsidence	1.00
	i	Depth to	1.00	'	1.00	Depth to	1.00
	 	saturated zone		saturated zone		saturated zone	
EmeA:	 85	 Not limited		 Not limited	 	 Not limited	

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	 Dwellings with basements 		 Small commercia buildings 	.1
	 	'	Value	Rating class and	Value	Rating class and limiting features	Value
GczA: Gilford	 75 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
GdnA: Gilford	 75 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	Very limited: Depth to saturated zone Ponding	1.00
HfbAN: Henrietta, drained	 80 	Depth to saturated zone	 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
HfbAU: Henrietta, undrained	 75 	Ponding Subsidence	 	Subsidence	 	 Very limited: Ponding Subsidence Depth to saturated zone	 1.00 1.00 1.00
HkkA: Hillsdale	 80	 Not limited 	 	 Not limited 	 	 Not limited 	
HkkB: Hillsdale	 80 	 Not limited	 	 Not limited 	 	 Not limited 	
HknC2: Hillsdale	 55 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.88
Oshtemo	 30 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
HknD2: Hillsdale	 55 	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
Oshtemo	 30 	•	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
HkpC2: Hillsdale	 55 	 Not limited 	 	 Not limited	 	 Somewhat limited: Slope	0.88
Tracy	 30 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
HkpD2: Hillsdale	 55 		 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
Tracy	30 	 Somewhat limited: Slope 	 0.96	 Somewhat limited: Slope 	 0.96 	 Very limited: Slope 	1.00

Table 13a.--Building Site Development--Continued

	Pct. of map	basements	out	Dwellings with basements	ı	Small commercia buildings 	al
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
	İ		i i		†		i i
HtbAN:		[1
Houghton, drained	75	Very limited:		Very limited:		Very limited:	
	 	Ponding Subsidence	1.00	Ponding Subsidence	1.00	Ponding Subsidence	1.00
	l I	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone		saturated zone		saturated zone	
	İ	Content of	1.00	Content of	1.00	Content of	1.00
		organic matter		organic matter		organic matter	
HtbAU:							
Houghton, undrained-	75	: -	1 00	Very limited:	1 00	Very limited:	
	l I	Ponding Subsidence	1.00	Ponding Subsidence	1.00	Ponding Subsidence	1.00
	 	Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone		saturated zone	
	i	Content of	1.00	Content of	1.00	Content of	1.00
		organic matter		organic matter		organic matter	İ
JaaAK:							
Jamestown	80	Very limited:	1 00	Very limited:	1 00	Very limited:	
	l I	Flooding Depth to	1.00	Flooding Depth to	1.00	Flooding Depth to	1.00
	 	saturated zone	1	saturated zone	1	saturated zone	
	i		i		i		i
MfaA:	i	İ	İ	İ	İ	İ	i
Martinsville	70	Somewhat limited:		Somewhat limited:		Somewhat limited:	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MfaB2:							
Martinsville	70 	Somewhat limited: Shrink-swell	0.50	Somewhat limited: Shrink-swell	0.50	Somewhat limited: Shrink-swell	0.50
	 	SHITHK-SWEII	0.50	SHITHK-BWEII	0.50	SHITHK-BWEII	
MfaC2:	İ		i	<u> </u>	i	<u> </u>	i
Martinsville	80	Somewhat limited:	İ	Somewhat limited:	İ	Somewhat limited:	İ
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
Mfran:							
Madaus, drained	 80	 Very limited:	I	 Very limited:	I	 Very limited:	1
nadauby druined		Ponding	1.00	Ponding	1.00	Ponding	1.00
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	İ	saturated zone	İ	saturated zone	İ
MfrAU:							!
Madaus, undrained	75	: -		Very limited:		Very limited:	
	l I	Ponding Depth to	1.00	Ponding Depth to	1.00	Ponding Depth to	1.00
	 	saturated zone	1	saturated zone	1	saturated zone	
	İ		i		i		i
MgcA:							
Maumee	80	Very limited:		Very limited:		Very limited:	
		Depth to	1.00		1.00		1.00
		saturated zone	11.00	saturated zone	11.00	saturated zone	11 00
	I I	Ponding	1.00	Ponding	1.00	Ponding	1.00
MgdAN:	i I	! 	1	 	1	 	1
Martisco, drained	75	 Very limited:	i	 Very limited:	i	 Very limited:	i
	i	Ponding	1.00		1.00	Ponding	1.00
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements 		Small commercia buildings	1
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MhaA: Maumee	 80 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
MhbA:	 	 		 	 	 	
Maumee	90	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00 	Very limited: Ponding Depth to saturated zone	 1.00 1.00
MmbC2: Miami	 80 	 Somewhat limited: Shrink-swell 	 0.50 	 Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	 Somewhat limited: Slope Shrink-swell	 0.88 0.50
MmdC3: Miami	 80 	 Somewhat limited: Shrink-swell	 0.50 	 Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	 Somewhat limited: Slope Shrink-swell	 0.88 0.50
MmdD3: Miami	 80 	 Somewhat limited: Slope Shrink-swell	 0.96 0.50 	 Very limited: Depth to saturated zone Slope Shrink-swell	 	 Very limited: Slope Shrink-swell	 1.00 0.50
MouA: Milford	 85 	 Very limited: Depth to saturated zone Ponding Shrink-swell	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Shrink-swell	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding Shrink-swell	 1.00 1.00 0.50
MsaA: Mishawaka	95	 Not limited	 	 Not limited	 	 Not limited	
MtsB2: Morley	 75 	 Very limited: Shrink-swell Depth to saturated zone	 1.00 0.39	 Very limited: Depth to saturated zone Shrink-swell	 1.00 1.00	 Very limited: Shrink-swell Depth to saturated zone	 1.00 0.39
MtsC2: Morley	 80 	 Very limited: Shrink-swell Depth to	 1.00 0.39	 Very limited: Depth to saturated zone	 1.00	 Very limited: Shrink-swell Slope	 1.00 1.00
MubD3:		saturated zone Slope	 0.04 	Shrink-swell Slope 	1.00 0.04 	Depth to saturated zone	0.39
Morley	80 	Very limited: Shrink-swell Slope Depth to saturated zone	 1.00 1.00 0.39	Very limited: Depth to saturated zone Shrink-swell Slope	 1.00 1.00 1.00	Shrink-swell Depth to	 1.00 1.00 0.39

Table 13a.--Building Site Development--Continued

Map symbol and soil name	 Pct. of map	 Dwellings witho basements 	ut	 Dwellings with basements 		 Small commercia buildings 	1
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
MvhAN:							
Moston, drained	80	 Verv limited:		 Very limited:		 Very limited:	1
,		Ponding	1.00	Ponding	1.00	Ponding	1.00
	į	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Content of	1.00	Shrink-swell	0.50	Content of	1.00
		organic matter				organic matter	
		Shrink-swell	0.50			Shrink-swell	0.50
MvhAU:		 		 		 	
Moston, undrained	75	 Verv limited:	i	 Very limited:	i	 Very limited:	i
,	ì	Ponding	1.00	Ponding	1.00	Ponding	1.00
	i	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	ĺ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Content of	1.00	Shrink-swell	0.50	Content of	1.00
		organic matter				organic matter	
		Shrink-swell	0.50			Shrink-swell	0.50
MvkA:		 	1	 	1	 	
Morocco	25	 Very limited:	1	 Very limited:	1	 Very limited:	1
MOIOCCO	03	Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone		saturated zone	
	i		i		i		i
MwzAN:			ĺ		İ		
Muskego, drained	75	Very limited:		Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone Content of	1.00	saturated zone Content of	1.00	saturated zone Content of	1.00
		organic matter	1	organic matter	1	organic matter	1
	i	Organic maccer	İ	Shrink-swell	0.50	Organic macter	
	i	i I	i		i		i
MwzAU:	ĺ		ĺ		İ		
Muskego, undrained	70	Very limited:		Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			1.00		1.00		1.00
		organic matter	1	organic matter	1	organic matter	1
	i		i	Shrink-swell	0.50		i
	į	İ	į		i		İ
OkrA:							
Oshtemo	80	Not limited	1	Not limited		Not limited	
a) =					1		
OkrB: Oshtemo		 Nat limited	1	 Not limited	1	 Not limited	
OSITCEMO	00	NOC IIMICEG	I	NOC IIMICEG	1	NOC IIMICEG	I
OkrC2:	i		i		i		i
Oshtemo	80	Not limited	i	Not limited	i	Somewhat limited:	i
	ĺ		İ	İ	İ	Slope	0.88
OkrD:		[!			
Oshtemo	80			Somewhat limited:		Very limited:	
		Slope	0.96	Slope	0.96	Slope	1.00
OlcA:	I I	 	I I	 	1	 	1
Oshtemo	80	Not limited	l I	 Not limited	1	 Not limited	1
			i				i
	1	1	1	1	1	1	1

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia buildings 	al
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OlcB: Oshtemo	 80 	 Not limited 	 	 Not limited 		 Not limited 	
OlcC2:	 80 	 Not limited 		 Not limited 		 Somewhat limited: Slope	0.88
OlcD: Oshtemo	 80 	 Somewhat limited: Slope 	 0.96	 Somewhat limited: Slope 	 0.96	 Very limited: Slope 	
OmgA: Osolo	 85 	 Not limited 	 	 Somewhat limited: Depth to saturated zone	 0.24 	 Not limited -	
PaaAN: Palms, drained	 80 	 Very limited: Subsidence Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00 1.00	 Very limited: Subsidence Depth to saturated zone Ponding	 1.00 1.00 1.00 	Very limited: Subsidence Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00 1.00
PaaAU: Palms, undrained	 75 	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00 1.00	 Very limited: Ponding Subsidence Depth to saturated zone	 1.00 1.00 1.00 	Very limited: Ponding Subsidence Depth to saturated zone Content of organic matter	 1.00 1.00 1.00
Pmg: Pits, gravel	 100 	 Not rated 	 	 Not rated 		 Not rated 	
Px1A: Psammaquents	 85 	 Not rated 	 	 Not rated 		 Not rated 	
Pxo: Psamments	 85 	 Not rated 	 	 Not rated 		 Not rated 	
QuiA: Quinn	 80 	 Very limited: Depth to saturated zone 	 1.00 	 Very limited: Depth to saturated zone 	 1.00 	 Very limited: Depth to saturated zone	 1.00
QujA: Quinn	75 75	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	1.00
RenA: Rensselaer	 85 	 Very limited: Ponding Depth to saturated zone Shrink-swell	 1.00 1.00 0.50		 1.00 1.00 		 1.00 1.00 0.50

Table 13a.--Building Site Development--Continued

and soil name	Pct. Dwellings without of basements map unit		Dwellings with basements		Small commercia buildings	1	
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
ReyA: Rensselaer	 75 	Ponding	 1.00 1.00 0.50		 1.00 1.00	-	 1.00 1.00 0.50
RopA: Riddles	 50	 Not limited	 	 Not limited	 	 Not limited	
Oshtemo	 35 	 Not limited	 	 Not limited		 Not limited	
RopB: Riddles	 50	 Not limited		 Not limited		 Not limited	
Oshtemo	 35 	 Not limited 	 	 Not limited	 	 Not limited	
RopC2: Riddles	 50 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
Oshtemo	 35 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.88
RopD2: Riddles	 50 		 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	 1.00
Oshtemo	 35 		 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
RogB:	 	İ		 	1	 	
Riddles	 55 	 Not limited 		 Not limited 		 Not limited 	
Metea	30 	 Not limited 		Not limited		Not limited	<u>i</u>
RoqC2: Riddles	 55 	 Not limited	 	 Not limited	 	 Somewhat limited: Slope	0.88
Metea	 30 	 Not limited 		 Not limited 	 	 Somewhat limited: Slope	0.88
RoqD2:				 			
Riddles	50 	'	 0.96	Somewhat limited:	0.96	Very limited: Slope	1.00
Metea	30	1	0.96	Somewhat limited:	0.96	Very limited: Slope	1.00
SdzA: Selfridge	 50 	•	 0.98	Very limited: Depth to saturated zone	 1.00	 Somewhat limited: Depth to saturated zone	 0.98
Crosier	 35 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00
	 	1	0.50	'	0.50	•	0.50

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia buildings 	1
		Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
SdzaB: Selfridge	 50 	 Somewhat limited: Depth to saturated zone	 0.98	 Very limited: Depth to saturated zone	 1.00	 Somewhat limited: Depth to saturated zone	 0.98
Brems	 35 	 Not limited 	 	 Very limited: Depth to saturated zone		 Not limited 	
SesA: Schoolcraft	 80 	 Somewhat limited: Shrink-swell	 0.50	 Not limited 	 	 Somewhat limited: Shrink-swell	
SnlA: Southwest	 75 	 Very limited: Depth to saturated zone Ponding Shrink-swell	 1.00 1.00 0.06	saturated zone Ponding	 1.00 1.00 0.06	 Very limited: Depth to saturated zone Ponding Shrink-swell	 1.00 1.00 0.06
TmpA: Tracy	 80	 Not limited 	 	 Not limited		 Not limited 	
TmpB: Tracy	 80 	 Not limited 	 	 Not limited 		 Not limited 	
TmpC2: Tracy	 80 	 Not limited	i 	 Not limited	 	 Somewhat limited: Slope	0.88
TmpD: Tracy	 80 		 0.96	 Somewhat limited: Slope 	 0.96	 Very limited: Slope 	 1.00
TnwA: Troxel	 80 	 Not limited 	 	 Not limited 		 Not limited 	
TxuA: Tyner	 85 	 Not limited 	 	 Not limited 		 Not limited 	
TxuB: Tyner	 85 	 Not limited 	 	 Not limited 		 Not limited 	
TxuC: Tyner	 85 	 Not limited 	 	 Not limited 		 Somewhat limited: Slope	 0.88
TxuD: Tyner	 85 	 Somewhat limited: Slope 	 0.96	 Somewhat limited: Slope 	 0.96	 Very limited: Slope 	 1.00
TxuF: Tyner	80	 Very limited: Slope		 Very limited: Slope	1.00	 Very limited: Slope	1.00
Uam: Udorthents, loamy	1 100	 Not rated	 	 Not rated		 Not rated	

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia buildings 	1
	unit 	'	Value	 Rating class and limiting features	Value	Rating class and limiting features	Value
UdeA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Bainter	40	 Not limited		 Not limited		 Not limited	
UdeB:	 	 	 	 	 	 	
Urban land	50 	Not rated	i I	Not rated	i I	Not rated	j i
Bainter	40	Not limited		Not limited	 	Not limited	
UdeC:							
Urban land	50 	Not rated 	 	Not rated 	 	Not rated 	1
Bainter	40	Not limited	 	Not limited	 	Somewhat limited:	0.88
UdkA:		 		 		 	
Urban land	50 	Not rated 	 	Not rated 	 	Not rated 	1
Brady	40 		 1.00 	Very limited: Depth to saturated zone	 1.00 	Very limited: Depth to saturated zone	1.00
UdzA:							
Urban land	50	Not rated		Not rated 		Not rated 	
Auten	40 	Depth to saturated zone	:	saturated zone	 1.00 0.50	saturated zone	 1.00 0.50
UeaA:	 						
Urban land	50	Not rated		Not rated		Not rated	
Crosier	 40 	Depth to saturated zone	 1.00 0.50	saturated zone	 1.00 0.50	saturated zone	 1.00 0.50
UeqA: Urban land			į		į	 	į
Orban land	50	Not rated 		Not rated 		Not rated 	
Gilford	40 	Depth to saturated zone	1.00	saturated zone	1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00
UewA: Urban land		Not maked		Not maked		 Not maked	
Brems	İ	İ	į	Not rated	 1.00	Not rated	
Morocco	 15	 Very limited:	 	 Very limited:	 	 Very limited:	
		<u>. </u>	:		:	Depth to	1.00
	I I	saturated zone		saturated zone		saturated zone	1

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	basements	Dwellings with basements		Small commercia buildings 	11	
		'	Value	Rating class and	Value	Rating class and limiting features	Value
UfbA:		 		 		 	
Urban land	50	 Not rated		 Not rated		 Not rated	
Brookston	40	 Very limited:	 	 Very limited:	 	 Very limited:	
	į		1.00	Ponding	1.00	Ponding	1.00
			1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Shrink-swell	 0.50	saturated zone Shrink-swell	 0.50	saturated zone Shrink-swell	0.50
UfhA:		 		 		 	
Urban land	50	 Not rated		 Not rated		Not rated	
Coloma	40	 Not limited	 	 Not limited		 Not limited	
UfhB:	l I	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated		Not rated	
Coloma	40	 Not limited		 Not limited		 Not limited	
UfhC:	l	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated		Not rated	
Coloma	40	 Not limited 		 Not limited 		 Somewhat limited: Slope	0.88
UfmA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Coupee	40	'			'		
		Shrink-swell 	0.50	Shrink-swell 	0.50	Shrink-swell	0.50
UfrA: Urban land		Not maked	į	Not maked	į	Not moted	į
Orban land	50	Not rated 		Not rated 		Not rated 	
Del Rey	40			Very limited:	:	Very limited:	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			0.50	•	0.50	1	0.50
UftA:		 		 		 	
Urban land	50 	Not rated	 	Not rated		Not rated	
Elston	40	 Not limited		Not limited		 Not limited	
UfzA:		 		 		 	
Urban land	50	Not rated		Not rated		Not rated	
Mishawaka	45	 Not limited		 Not limited		 Not limited	
UgaA:		 					
Urban land	50 	Not rated	 	Not rated		Not rated	
Morocco	40			Very limited:	:	Very limited:	11.00
	I I	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Datarated Zone		Datarated Zone		Sacaracea Zone	

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map	basements	ut	 Dwellings with basements 		Small commercial buildings	
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UglA: Urban land	 50	Not rated	 	 Not rated	 	 Not rated	
Osolo	 40 	 Not limited 	 		 0.24 	 Not limited 	
UgrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Rensselaer	 40 	Ponding Depth to saturated zone	 1.00 1.00 0.50	Depth to saturated zone	 1.00 1.00 	_	 1.00 1.00 0.50
UgsA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Not limited 	
Oshtemo	15	Not limited	 	Not limited	 	Not limited	i I
UgsB: Urban land	 50 	 Not rated	 	 Not rated	 	 Not rated	
Riddles	25	 Not limited 	 	 Not limited 	 	 Not limited 	
Oshtemo	15	Not limited	 	Not limited	 	Not limited	
UgvA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Tyner	40	 Not limited 	 	 Not limited 	 	 Not limited 	
UgvB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 	 Not limited 	 	 Not limited 	 	 Not limited 	
UgvC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
UgvD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 		 0.96 	 Somewhat limited: Slope 	 0.96 	 Very limited: Slope 	 1.00
UhmA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	į Į
Hillsdale	 40 	 Not limited 	 	 Not limited 	 	 Not limited 	
UhmB: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	
Hillsdale	40	 Not limited 	 	 Not limited 	 	 Not limited 	İ

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map	of basements		Dwellings with basements		Small commercia buildings 	al
	unit	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
		Ī	İ		İ		İ
UhoC: Urban land	50	 Not rated		 Not rated		 Not rated	
Hillsdale	30	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
Oshtemo	15	 Not limited 		 Not limited 	 	 Somewhat limited: Slope	 0.88
UhoD:		 		 		 	
Urban land	50	 Not rated 	 	 Not rated 	 	 Not rated 	
Hillsdale	30	Somewhat limited:	0.96	Somewhat limited:	0.96	Very limited: Slope	1.00
Oshtemo	15	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
UhpC:		 		 		 	
Urban land	50	Not rated	į Į	Not rated	<u> </u> 	Not rated	
Hillsdale	30	Not limited		Not limited		Somewhat limited:	0.88
Tracy	15	 Not limited 		 Not limited 		 Somewhat limited: Slope	0.88
UhpD: Urban land	50	 Not rated	 	 Not rated	 	 Not rated	
orban rand	30		İ			 	
Hillsdale	30	Somewhat limited:	0.96	Somewhat limited:	0.96	Very limited: Slope	1.00
Tracy	15	 Somewhat limited: Slope	0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
UhwA:		l I		 -	1	 	
Urban land	50	 Not rated 	 	 Not rated 		 Not rated 	
Martinsville	40	Somewhat limited: Shrink-swell	0.50	Somewhat limited:	0.50	Somewhat limited:	0.50
Urban land	50	 Not rated 	 	 Not rated 	 	 Not rated 	
Martinsville	40	'	0.50	Somewhat limited: Shrink-swell	0.50	Somewhat limited:	0.50
UhwC:		 	 	 	1	 	1
Urban land	50	Not rated		 Not rated 		 Not rated 	
Martinsville	40	•	0.50	Somewhat limited:	0.50	Somewhat limited: Slope Shrink-swell	0.88

Table 13a.--Building Site Development--Continued

and soil name	 Pct. of map	basements	ut	 Dwellings with basements 		Small commercial buildings	
	unit 	'		 Rating class and limiting features		Rating class and limiting features	Value
		[!			
UkaA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated	
Maumee	 40 	Depth to saturated zone	1.00	saturated zone	1.00	saturated zone	1.00
	 	Ponding	1.00	Ponding	1.00	Ponding	1.00
UkeA:			i	 			i
Urban land	50	Not rated	 	Not rated	 	Not rated	
Milford	40 		1.00	Very limited: Depth to saturated zone	 1.00 	Very limited: Depth to saturated zone	 1.00
	 	!			1.00		1.00
UkxA:	l I	 		 	 	 	1
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Oshtemo	40	Not limited	 	Not limited	 	Not limited	
UkxB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Oshtemo	 40 	 Not limited 	 	 Not limited 	 	 Not limited	
UkxC: Urban land	 50	 Not rated	 	 Not rated	 	Not rated	
Oshtemo	 40 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	0.88
UmfB:]	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Riddles	25	Not limited	 	Not limited	i I	Not limited	
Metea	15 	Not limited 	 	Not limited 	 	Not limited 	
UmfC: Urban land	 50	 Not rated		 Not rated		 Not rated	
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.88
Metea	 15 	 Not limited 	 	 Not limited 	 	 Somewhat limited: Slope	 0.88
IImfD.							
UmfD: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Riddles	 25 	'	 0.96	 Somewhat limited: Slope	0.96	 Very limited: Slope	1.00
Metea	 15 	'	 0.96	 Somewhat limited: Slope	 0.96	 Very limited: Slope	 1.00

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map	basements	ut	Dwellings with basements		Small commercia buildings	1
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UmpA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Schoolcraft	40		0.50	Not limited	i !	Somewhat limited: Shrink-swell	0.50
UmuA:	 	 	l i		l i	l	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Southwest	40	 Very limited:	İ	Very limited:	İ	 Very limited:	i
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		<u>-</u>	1.00		1.00		1.00
	 	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
UmwA:	l I	 	l I	 	l I	 	
Urban land	 50 	 Not rated 	 	 Not rated 		 Not rated 	į
Tracy	40	Not limited	j I	Not limited	į į	Not limited	į į
UmwB:			İ		İ		i
Urban land	50	Not rated	 	Not rated	 	Not rated	İ
Tracy	40	Not limited	į į	Not limited	į į	Not limited	į
UmwC:							
Urban land	50	Not rated	į į	Not rated	į Į	Not rated	į
Tracy	40	Not limited	į Į	Not limited	į Į	Somewhat limited:	0.88
UmwD:	 	 	l I	 	l I	 	
Urban land	 50 	 Not rated 		 Not rated 		 Not rated 	
Tracy	40		 0.96	Somewhat limited: Slope	 0.96	 Very limited: Slope	1.00
UmxA:							
Urban land	50 	Not rated	 	Not rated	 	Not rated	1
Troxel	40	 Not limited	 	 Not limited		 Not limited	
UnoA:			İ	[İ	 	
Urban land	50	Not rated	i i	 Not rated 	i i	Not rated	į į
Whitaker	40		1.00	 Very limited: Depth to	1.00	 Very limited: Depth to	1.00
		saturated zone Shrink-swell	0.50	saturated zone		saturated zone Shrink-swell	0.50
UnqB:	 	 	 	 	 	[]	1
Urban land	 50 	 Not rated 		 Not rated 		 Not rated 	
Williamstown	25	Somewhat limited:		 Very limited:		 Somewhat limited:	
		Shrink-swell	0.50	Depth to	1.00	Shrink-swell	0.50
		Depth to	0.39	saturated zone		Depth to	0.39
	I	saturated zone	I	Shrink-swell	0.50	saturated zone	1

Table 13a.--Building Site Development--Continued

and soil name	Pct. of map unit	basements	ut	Dwellings with basements		Small commercia buildings 	11
	unit	'	Value	Rating class and limiting features		Rating class and limiting features	Value
UnqB: Crosier	 15 	Depth to saturated zone	 1.00 0.50	saturated zone	 1.00 0.50	saturated zone	 1.00 0.50
UntA: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Wunabuna, drained	 40 	Depth to saturated zone Ponding	1.00	saturated zone Content of	 1.00 1.00 1.00	saturated zone	 1.00 1.00 0.50
Usl: Udorthents, rubbish-	 100	 Not rated		 Not rated	 	 Not rated	
W: Water	 100	 Not rated		 Not rated		 Not rated	
WcnAI: Waterford	 80 	Flooding	 1.00 1.00		 1.00 1.00	 Very limited: Flooding Depth to saturated zone	 1.00 1.00
WoaA: Williamstown	 85 	Shrink-swell	 0.50 0.39	: -	 1.00 0.50	Depth to	 0.50 0.39
WoaB2: Williamstown	 85 	Shrink-swell	 0.50 0.39	: -	 1.00 0.50	Depth to	 0.50 0.39
WoaC2: Williamstown	 80 	Shrink-swell	0.50	 Very limited: Depth to saturated zone Shrink-swell	1.00	 Somewhat limited: Slope Shrink-swell Depth to saturated zone	 0.88 0.50 0.39
WobB: Williamstown	 50 	Shrink-swell	0.50	Depth to	1.00	 Somewhat limited: Shrink-swell Depth to saturated zone	 0.50 0.39
Crosier	 30 	Depth to saturated zone	1.00	 Very limited: Depth to saturated zone Shrink-swell	1.00	 Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50

Table 13a.--Building Site Development--Continued

Map symbol	Pct.	Dwellings witho	ut	Dwellings with		Small commercia	1
and soil name	of	basements		basements		buildings	
	map						
	unit						
		Rating class and	Value	Rating class and	Value	Rating class and	Value
		limiting features		limiting features		limiting features	
WrxAN:	 	 	 	 		 	
Wunabuna, drained	85	Very limited:	i	Very limited:	i	 Very limited:	i
	i	Depth to	1.00	Depth to	1.00	Depth to	1.00
	į.	saturated zone	İ	saturated zone	İ	saturated zone	i
	İ	Ponding	1.00	Content of	1.00	Ponding	1.00
		Shrink-swell	0.50	organic matter	İ	Shrink-swell	0.50
				Ponding	1.00		
WtbA:	 	 	 	 		 	
Whitaker	75	Very limited:	ĺ	Very limited:	İ	Very limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Shrink-swell	0.50			Shrink-swell	0.50
WujB:							
Williamstown	45	Somewhat limited:	ĺ	Very limited:	İ	Somewhat limited:	ĺ
		Shrink-swell	0.50	Depth to	1.00	Shrink-swell	0.50
		Depth to	0.39	saturated zone		Depth to	0.39
		saturated zone		Shrink-swell	0.50	saturated zone	
Moon	40	 Somewhat limited:		 Very limited:		 Somewhat limited:	
		Depth to	0.07	Depth to	1.00	Depth to	0.07
	I	saturated zone		saturated zone		saturated zone	

Table 13b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map	•	ıd	 Shallow excavati 	ons	 Lawns and landsca 	ping
	unit 	Rating class and	Value	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	1	limiting features	1	limiting features	1
AahAK:	İ					! 	i
Abscota	80	Very limited:		Very limited:		Somewhat limited:	
		Flooding	1.00	Cutbanks cave	1.00	Droughty	0.66
			ļ	Depth to	0.95	Flooding	0.60
	 	 		saturated zone	0.60	 	
	İ	[i			 	İ
AatAN:	İ	İ	i	<u> </u>	i	<u> </u>	i
Ackerman, drained	85	Very limited:	İ	Very limited:	İ	Very limited:	İ
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	· -	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
	l I	Frost action	1.00	Cutbanks cave	1.00	 	
Abhan:	 	 	i	 		 	
Adrian, drained	75	Very limited:	İ	 Very limited:		 Very limited:	i
	İ	Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Subsidence	1.00		1.00		!
		Frost action	1.00		1.00	 -	
	l I	 	I	organic matter	I	 	
AbhAU:	İ		i		i	 	
Adrian, undrained	75	Very limited:	İ	Very limited:	i	Very limited:	i
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	· -	1.00	Content of	1.00
		saturated zone		saturated zone		organic matter	
	 	Subsidence Frost action	1.00		1.00	: -	1.00
	İ	Flost action		organic matter		Bacuraceu Zone	i
	İ	İ	İ		İ	İ	İ
ApuAN:		[
Antung, drained	75	: -		Very limited:	:	Very limited:	
	 	Ponding Depth to	1.00 1.00	-	1.00	· -	1.00
	l I	saturated zone	1	saturated zone	1	saturated zone	1
	i	Frost action	1.00		1.00		i
	İ	İ	İ		İ	İ	İ
AxvA:							
Auten	82	Very limited:		Very limited:		Very limited:	
				Depth to			1.00
	l I	'		saturated zone Cutbanks cave	'	•	
	 	!	1.00		1	 	1
			0.50		i		i
				ı	1	I	1
	 				1	I	'
BaaA:	 	 					į
BaaA: Bainter	 85	'		 Very limited:	:	 Not limited	<u> </u>
	 85 	'			1.00	:	
Bainter	 85 	'			:	:	
	 	Frost action 	0.50		1.00	:	

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct.	Local roads ar	nd	Shallow excavati	ons	Lawns and landsca	aping
	map						
	unit	·	1 77 - 7	 D-#-1	1 77 - 7	 B-+i11	Value
	1	Rating class and limiting features	value	Rating class and limiting features	value	limiting features	value
	l	IIMICING TEACUTES	1	IIMICING Teacures	1	IIMITCHING TEACULES	1
BaaC2:	i I	 	i	 		 	i
Bainter	85	Somewhat limited:	i	 Very limited:	i	Not limited	i
	į	Frost action	0.50	Cutbanks cave	1.00	İ	j
BbmA:							
Baugo	85		!	Very limited:	:	Very limited:	
		Depth to	1.00	: -	1.00	Depth to	1.00
	1	saturated zone	1.00	saturated zone Cutbanks cave	1.00	saturated zone	
	l I	Low strength	1.00	!	0.50	 	l I
	i I	Shrink-swell	0.50	: -		 	i
	i				i		i
BmgA:	i	İ	i	İ	i	İ	i
Blount	85	Very limited:	İ	Very limited:	İ	Very limited:	Ì
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	1.00	: -	0.50		
		Low strength	1.00			1	
		Shrink-swell	0.50	Cutbanks cave	0.10	 	
BshA:	l I	 	I	 	1	 	l I
Brady	90	 Verv limited:	i	 Very limited:		 Very limited:	i
	İ	Depth to	1.00		1.00	Depth to	1.00
	į	saturated zone	į	saturated zone	į	saturated zone	İ
		Frost action	1.00	Cutbanks cave	1.00		
BsxA:			!				
Brems	50	Not limited		Very limited:	:	Somewhat limited:	
	1	 	1	Cutbanks cave Depth to	1.00	Droughty	0.01
	l I	 	1	saturated zone	1	 	l
	i		i				i
Morocco	40	Very limited:	i	Very limited:	i	Very limited:	i
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	0.50	Cutbanks cave	1.00	Droughty	0.15
BteA:		 					
Brems	00	Not limited	1	Very limited: Cutbanks cave	1.00	Somewhat limited: Droughty	0.01
	i I	 	i	Depth to	1.00	Dioughey	
	İ		i	saturated zone	i	i İ	i
	į	İ	į	İ	i	İ	İ
BuuA:							
Brookston	80	Very limited:		Very limited:		Very limited:	
		Ponding	1.00		1.00		1.00
		Depth to	1.00		1.00		1.00
	l I	saturated zone	1.00	saturated zone Cutbanks cave	0.10	saturated zone	1
	l I	Low strength	1.00	Cuchanks cave	1	 	l I
	İ	Shrink-swell	0.50	 	i	 	1
	i						Í
CmbAI:	İ	İ	i	İ	i	İ	i
Cohoctah	75	Very limited:	1	Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00		1.00
		saturated zone	1	saturated zone		Depth to	1.00
		Frost action	1.00	'	1.00	saturated zone	
		Flooding	1.00		0.80	a contract of the contract of	

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map	streets	đ	 Shallow excavati 	ons	Lawns and landsca	ping
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
CnbA: Coloma	 85 			 Very limited: Cutbanks cave		 Somewhat limited:	 0.50 0.22
CnbB: Coloma	 85 	 Not limited 	 	 Very limited: Cutbanks cave		 Somewhat limited: Too sandy Droughty	0.50
CnbC: Coloma	 85 	 Not limited 	 	 Very limited: Cutbanks cave	1.00	 Somewhat limited: Too sandy Droughty	0.50
CnbD: Coloma	 85 	 Somewhat limited: Slope 	 0.96	 Very limited: Cutbanks cave Slope	 1.00 0.96	 Somewhat limited: Slope Too sandy Droughty	 0.96 0.50 0.22
CrrA: Coupee	 85 	 Very limited: Low strength Shrink-swell Frost action	 1.00 0.50 0.50	 Very limited: Cutbanks cave 		 Not limited 	
CvdA: Crosier	 85 	 Very limited: Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 0.50	saturated zone Depth to dense	 1.00 0.50 0.10	 Very limited: Depth to saturated zone 	 1.00
CvdB: Crosier	 80 	 Very limited: Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 0.50	saturated zone Depth to dense	 	 Very limited: Depth to saturated zone 	
CwkA: Crumstown	 80 	 Somewhat limited: Frost action 	 0.50 	Very limited: Cutbanks cave Depth to saturated zone	 1.00 0.24	 Somewhat limited: Droughty 	 0.01
CwkB: Crumstown	 80 	 Somewhat limited: Frost action 	 0.50 	 Very limited: Cutbanks cave Depth to saturated zone	 1.00 0.24	 Somewhat limited: Droughty 	 0.01

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map unit	streets	ıd	Shallow excavati 	ons.	 Lawns and landsca 	ping
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DcrA:	 	 		 		 	
Del Rey	85	 Very limited:	i	Very limited:	i	 Very limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
	l	Shrink-swell	0.50			 	
EchAN:	İ						
Edwards, drained	80	Very limited:		Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
	l I	Subsidence Frost action	1.00	Content of organic matter	1.00	Carbonate content	1.00
		Flost action		Cutbanks cave	0.10	 	
	i	İ	j	İ	İ	İ	İ
EchAU:							
Edwards, undrained	75	: -	1 00	Very limited:	1 00	Very limited:	1.00
	 	Ponding Depth to	1.00	Ponding Depth to	1.00	Ponding Content of	1.00
	1	saturated zone	1	saturated zone	1	organic matter	1.00
	i	Subsidence	1.00	Content of	1.00		1.00
	İ	Frost action	1.00	organic matter		saturated zone	
	İ	İ	İ	Cutbanks cave	0.10	Carbonate content	1.00
EcrAN:		 		1		 	
Edselton, drained	70	 Very limited:		 Very limited:		 Very limited:	
	į	Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Subsidence	1.00	Cutbanks cave	1.00	Carbonate content	1.00
	l I	Frost action	1.00	Content of organic matter	1.00	 	
	i	İ	i	İ	i	İ	İ
EcrAU: Edselton, undrained-	70	 Very limited:		 Very limited:		 Very limited:	
naberton, anaramea	70	Ponding	1.00	Ponding	1.00	Ponding	1.00
	İ	Depth to	1.00	Depth to	1.00		1.00
	İ	saturated zone	i	saturated zone	i	organic matter	İ
		Subsidence	1.00	Cutbanks cave	1.00	Depth to	1.00
		Frost action	1.00	Content of	1.00	saturated zone	
		1		organic matter		Carbonate content	1.00
EmeA:	l	 				 	
Elston	85	Somewhat limited:	i	 Very limited:	i	Not limited	İ
	İ	Frost action	0.50	Cutbanks cave	1.00	İ	İ
G1		1					
GczA: Gilford	 75	 Verv limited:	1	 Very limited:	1	 Very limited:	
- ====		Depth to	1.00		1.00		1.00
	i	saturated zone	1	saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
GdnA:		 		 		 	
Gilford	75	Very limited:	İ	 Very limited:	İ	 Very limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone	1	saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	I .	1

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map	streets	d	Shallow excavati 	ons	Lawns and landsca 	aping
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
HfbAN:	 	 	 	 		[
Henrietta, drained	80	Very limited:	İ	 Very limited:	İ	 Very limited:	i
		Depth to	1.00	Depth to	1.00	Content of	1.00
		saturated zone	!	saturated zone		organic matter	
	l I	Frost action Ponding	1.00	!	1.00	Depth to saturated zone	1.00
		Foliating		Foliating		Ponding	1.00
HfbAU:	 	 		 		 	
Henrietta, undrained	75	Very limited:	į	Very limited:	İ	 Very limited:	i
		Ponding	1.00	Ponding	1.00		1.00
		: -	:	Depth to	1.00	Content of	1.00
	 	saturated zone Subsidence		saturated zone Cutbanks cave	1 00	organic matter Depth to	1.00
		!	1.00			saturated zone	
HkkA:						 	
Hillsdale	80	 Somewhat limited:		 Somewhat limited:		Not limited	
		Frost action	'	'	0.10		
HkkB:	 	 		 		 	
Hillsdale	80	Somewhat limited:	i	Somewhat limited:	i	Not limited	i
		Frost action	0.50	Cutbanks cave	0.10		
HknC2:				 		 	
Hillsdale	55			Somewhat limited:		Not limited	
	 	Frost action	0.50	Cutbanks cave	0.10	 	
Oshtemo	30	Somewhat limited:	İ	 Very limited:	İ	Not limited	İ
		Frost action	0.50	Cutbanks cave	1.00	 	
HknD2:						 	
Hillsdale	55	:		Somewhat limited:	:	Somewhat limited:	
		Slope	0.96		'	Slope	0.96
	 	Frost action	0.50	Cutbanks cave	0.10	 	
Oshtemo	30	Somewhat limited:	i	Very limited:	į	Somewhat limited:	į
		Slope	0.96	Cutbanks cave	'	Slope	0.96
	 	Frost action	0.50	Slope	0.96	 	
HkpC2:	İ		İ	İ	İ		İ
Hillsdale	55	Somewhat limited:		Somewhat limited:		Not limited	
	 	Frost action	0.50	Cutbanks cave	0.10	 	
Tracy	30	Somewhat limited:		 Very limited:		 Not limited	
	į	Frost action	0.50	Cutbanks cave	1.00		į
HkpD2:	[[
Hillsdale	55	Somewhat limited:	İ	Somewhat limited:	İ	Somewhat limited:	İ
		Slope	0.96		:	Slope	0.96
		Frost action	0.50	Cutbanks cave	0.10	 	
Tracy	30	 Somewhat limited:		 Very limited:		 Somewhat limited:	
		Slope	0.96		1.00	Slope	0.96
	1	Frost action	0.50	Slope	0.96		1

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	streets	d	 Shallow excavati 	ons	 Lawns and landsca 	ping
	į	Rating class and	Value	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	1	limiting features		limiting features	1
HtbAN:	 			 		 	
Houghton, drained	75	Very limited:	i	 Very limited:	İ	Very limited:	i
		Ponding	1.00	Ponding	1.00	Ponding	1.00
	[Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone Subsidence	1.00	saturated zone Content of	1.00	saturated zone	
		Frost action	1.00	organic matter	1	 	
	į	İ	į	Cutbanks cave	0.10	İ	i
		!		!		!	
HtbAU: Houghton, undrained-	75	 Vorm: limited.		 Vorm limited		 Vorm: limited.	
Houghton, undrained-	/3	Ponding	1.00	Very limited: Ponding	1.00	Very limited: Ponding	1.00
	i	Depth to	1.00	Depth to	1.00	Content of	1.00
	ĺ	saturated zone	ĺ	saturated zone	Ì	organic matter	İ
		Subsidence	1.00	Content of	1.00	Depth to	1.00
	1	Frost action	1.00	organic matter Cutbanks cave	0.10	saturated zone	
				Cutbanks cave		 	
JaaAK:	İ	j	İ	İ	į	į	i
Jamestown	80	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	1	saturated zone	1.00	saturated zone Cutbanks cave	1.00	saturated zone	0.60
	i	Flooding	1.00	Flooding	0.60		
	İ	Low strength	1.00	Depth to dense	0.50	İ	İ
				layer			
MfaA:		 		 		 	
Martinsville	70	Somewhat limited:		Somewhat limited:		Not limited	
	İ	Low strength	0.78	Cutbanks cave	0.10	İ	İ
		Shrink-swell	0.50				
	l I	Frost action	0.50	 		1	
MfaB2:	Ì						
Martinsville	70	Somewhat limited:	İ	Somewhat limited:	İ	Not limited	İ
	!	Low strength	0.78	Cutbanks cave	0.10	!	
		Shrink-swell Frost action	0.50	 			
		Frost action		 		 	
MfaC2:	į	İ	į	İ	į	İ	i
Martinsville	80	Somewhat limited:		Somewhat limited:		Not limited	
		Low strength Shrink-swell	0.78	Cutbanks cave	0.10		
	 	Frost action	0.50	 		 	
	į	İ	į	İ	į	İ	i
MfrAN:							
Madaus, drained	80	Very limited: Ponding	1.00	Very limited: Ponding	1.00	Very limited: Ponding	1.00
		Depth to	1.00		1.00	Depth to	1.00
	İ	saturated zone		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00		:
	1					Droughty	0.06
MfrAU:	I I	 	 	 	 	 	
Madaus, undrained	75	 Very limited:		 Very limited:		 Very limited:	
		Ponding	1.00	Ponding	1.00		1.00
	ļ	Depth to	1.00	: -	1.00	Depth to	1.00
	1	saturated zone	11 00	saturated zone	11 00	saturated zone	11 00
	I 	Frost action	1.00	Cutbanks cave	1.00	Carbonate content Droughty	0.06
	1		i	I	1	1	

Table 13b.--Building Site Development--Continued

	Pct.		.d	Shallow excavati	ons	Lawns and landsca	ping
and soil name	of map	streets		 		 	
	unit			 		 	
		Rating class and	Value	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u>i</u>	limiting features	<u>i</u>	limiting features	İ
MgcA: Maumee	 on	 Very limited:	1	 Very limited:		 Very limited:	1
Mauliee	80 	Depth to	1.00	Depth to	1.00	Depth to	1.00
	l I	saturated zone	1	saturated zone	1	saturated zone	1
	l I	Ponding	1.00	Cutbanks cave	1.00	Ponding	1.00
	 	Frost action	0.50	Ponding	1.00	Droughty	0.01
				Ionaing		Droughty	
MgdAN:	İ		i		i	<u> </u> 	
Martisco, drained	75	Very limited:	i	Very limited:	i	 Very limited:	i
	İ	Ponding	1.00	Ponding	1.00	Ponding	1.00
	İ	Depth to	1.00	Depth to	1.00	Content of	1.00
	İ	saturated zone	i	saturated zone	İ	organic matter	İ
	İ	Subsidence	1.00	Cutbanks cave	0.10	Depth to	1.00
	İ	Frost action	1.00		İ	saturated zone	İ
	İ		İ		İ	Carbonate content	1.00
			İ	ĺ	İ	İ	
MhaA:							
Maumee	80	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Ponding	1.00	Cutbanks cave	1.00	Ponding	1.00
		Frost action	0.50	Ponding	1.00	Droughty	0.01
MhbA:			!				
Maumee	90	Very limited:	!	Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	0.50	Cutbanks cave	1.00	Droughty	0.01
MmbC2:	 	 	1	l I	1	 	1
Miami	 on	 Town limited:	1	 Very limited:	l I	 Not limited	1
MIAMIT	60 	Low strength	1.00	Depth to	1.00	Not Illitted	l I
	l I	Shrink-swell	0.50	saturated zone	1	 	l I
	 	Frost action	0.50	Depth to dense	0.50	 	1
	 	11000 0001011	1	layer		 	
			i	Cutbanks cave	0.10	 	İ
	İ		i		i		i
MmdC3:	İ	İ	i	İ	i	İ	i
Miami	80	Very limited:	i	Very limited:	İ	Not limited	İ
	İ	Low strength	1.00	Depth to	1.00	İ	İ
		Shrink-swell	0.50	saturated zone	İ		ĺ
		Frost action	0.50	Depth to dense	0.50		ĺ
				layer			
				Cutbanks cave	0.10		
MmdD3:							
Miami	80			Very limited:	'	Somewhat limited:	
		Low strength	1.00		1.00	Slope	0.96
		Slope	0.96	•		[
	!	Shrink-swell	0.50		0.96	<u> </u>	
		Frost action	0.50		0.50		
			1	1 1	1	I .	1
		1		layer Cutbanks cave	0.10	1	!

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	Local roads an	đ	Shallow excavati 	ons	Lawns and landsca	ping
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Valu
	İ	İ	i	ĺ	i	ĺ	İ
MouA:	ĺ		İ	ĺ	İ	ĺ	
Milford	85	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Ponding	1.00	1		1	
		Shrink-swell	0.50	 		 	
MsaA:	l I	 		 	1	 	
Mishawaka	95	 Not limited	i	 Very limited:		 Not limited	
			i	Cutbanks cave	1.00		i
	İ		i		i		i
MtsB2:	Ì	İ	İ	İ	İ	İ	į
Morley	75	Very limited:		Very limited:		Very limited:	
		Frost action	1.00	Depth to	1.00	Carbonate content	1.00
		Low strength	1.00	saturated zone		Depth to	0.19
		Shrink-swell	1.00	Depth to dense	0.50	saturated zone	
		Depth to	0.19			Droughty	0.01
		saturated zone	!	Cutbanks cave	0.10		
MtsC2:		 		 		 	
Mtscz: Morley	20	 Very limited:	1	 Very limited:		 Very limited:	
MOIley	00	Frost action	1.00		1.00		1 00
	Ì	Low strength	1.00			Depth to	0.19
	Ì	Shrink-swell	1.00	Depth to dense	0.50	saturated zone	
	i	Depth to	0.19	: -		Slope	0.04
	i	saturated zone	i	Cutbanks cave	0.10	Droughty	0.01
	į	Slope	0.04	Slope	0.04	İ	į
MubD3:							
Morley	80	: -	!	Very limited:	:	Very limited:	
		Frost action	1.00		1.00	Slope	1.00
		Low strength	1.00	saturated zone		Carbonate content	
		Shrink-swell	1.00		1.00	Depth to	0.19
	l I	Slope Depth to	1.00	Depth to dense	0.50	saturated zone Droughty	0.10
	l I	saturated zone	10.13	Cutbanks cave	0.10	Droughty	10.10
	Ì		i	Cacbanns cave		 	
MvhAN:	İ		i	İ	i	İ	i
Moston, drained	80	Very limited:	İ	Very limited:	į	Very limited:	į
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Subsidence	1.00	Cutbanks cave	1.00		
		Frost action	1.00	•	1.00	<u> </u>	
		Low strength	0.78	organic matter	!		
Mvvh AII .		 	1	 		 	
MvhAU: Moston, undrained	 75	 Verv limited:	1	 Very limited:		 Very limited:	
andramed	,3	Ponding	1.00	: -	1.00		1.00
	İ	Depth to	1.00		1.00		1.00
	i	saturated zone	i	saturated zone		organic matter	
	i	Subsidence	1.00	•	1.00		1.00
	i	Frost action	1.00	1	1.00	saturated zone	İ
	İ	Low strength	0.78	!	i	İ	İ
	İ	i -	i	İ	i	i I	i

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map	streets	đ	Shallow excavati 	ons	Lawns and landsca	ping
	unit 	 Rating class and limiting features	Value	 Rating class and limiting features	Value	Rating class and limiting features	Value
MvkA: Morocco	 85 	 Very limited: Depth to saturated zone Frost action	 1.00 0.50	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Droughty	 1.00 0.15
MwzAN: Muskego, drained	 75 	 Very limited: Ponding Depth to saturated zone Subsidence Frost action	 1.00 1.00 1.00 1.00	Depth to saturated zone Content of	 1.00 1.00 1.00 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
MwzAU: Muskego, undrained	 70 	:	 1.00 1.00 1.00 1.00	Depth to saturated zone Content of	 1.00 1.00 1.00 1.00 0.10	Content of organic matter	 1.00 1.00 1.00
OkrA: Oshtemo	 80 	 Somewhat limited: Frost action	 0.50	 Very limited: Cutbanks cave	 1.00	 Not limited 	
OkrB:	 80 	 Somewhat limited: Frost action	 0.50	 Very limited: Cutbanks cave	 1.00	 Not limited	
OkrC2:	 80 	 Somewhat limited: Frost action	 0.50	 Very limited: Cutbanks cave	 1.00	 Not limited 	
OkrD: Oshtemo	 80 	 Somewhat limited: Slope Frost action	 0.96 0.50	 Very limited: Cutbanks cave Slope	 1.00 0.96	 Somewhat limited: Slope	0.96
OlcA: Oshtemo	 80 	'		 Very limited: Cutbanks cave	1.00	 Not limited	
OlcB: Oshtemo	 80 	'		 Very limited: Cutbanks cave	 1.00	 Not limited 	
OlcC2: Oshtemo	 80 	1		 Very limited: Cutbanks cave	 1.00	 Not limited 	
OlcD: Oshtemo	 80 	Slope	:	:	 1.00 0.96	 Somewhat limited: Slope	

Table 13b.--Building Site Development--Continued

and soil name	Pct. of	Local roads an	đ	Shallow excavati	ons	Lawns and landsca	ping
	map						
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
				I			
OmgA: Osolo	 85 	 Not limited 	 	 Very limited: Cutbanks cave Depth to saturated zone	 1.00 0.24	 Somewhat limited: Droughty 	 0.07
	İ		i		i		i
PaaAN:							
Palms, drained	80 	Very limited: Depth to saturated zone	1.00	Very limited: Depth to saturated zone	1.00	Very limited: Content of organic matter	1.00
	İ	Subsidence	1.00	Ponding	1.00	Depth to	1.00
	İ	Frost action	1.00	Content of	1.00	saturated zone	İ
	 	Ponding 	1.00	organic matter Cutbanks cave	0.10	Ponding	1.00
PaaAU:	 	 		 		 	
Palms, undrained	75	 Very limited:	i	 Very limited:	i	 Very limited:	i
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00	Content of	1.00
		saturated zone		saturated zone		organic matter	
		Subsidence	1.00	Content of	1.00	Depth to	1.00
	 	Frost action	1.00	organic matter Cutbanks cave	0.10	saturated zone	
Pmg: Pits, gravel	 100	 Not rated	 	 Not rated	 	 Not rated	
	İ		İ				i
Px1A: Psammaquents	 85	 Not rated		 Not rated		 Not rated	
Pxo:	 	 		 		 	
Psamments	 85 	 Not rated 	İ	 Not rated 	 	 Not rated 	
QuiA:	İ	İ	İ	İ	İ	İ	İ
Quinn	80	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	: -	1.00	Depth to	1.00
		saturated zone Frost action	1.00	saturated zone Cutbanks cave	1.00	saturated zone	
QujA:	 	 		 		 	
Quinn	75	 Very limited:	i	 Very limited:		 Very limited:	
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00		
RenA:	I I	 		 		 	1
Rensselaer	85	Very limited:	i	 Very limited:	i	 Very limited:	ĺ
			1.00		1.00		1.00
		Depth to	1.00		1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Frost action	1.00	Cutbanks cave	1.00		[
	1		1.00	 	1	 	[
	I	Shrink-swell	0.50	I	1	I	1

Table 13b.--Building Site Development--Continued

	Pct. of map	streets	đ	Shallow excavati 	ons	Lawns and landsca	ping
	unit 	'		Rating class and limiting features	'	Rating class and limiting features	Value
ReyA: Rensselaer	 75 	Ponding Depth to saturated zone Frost action Low strength	1.00 1.00	Depth to saturated zone Cutbanks cave	1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
RopA: Riddles	 50 	Low strength		Cutbanks cave	1.00	 Not limited 	
Oshtemo	35	'		 Very limited: Cutbanks cave		 Not limited 	
RopB: Riddles	 50 	Low strength		Cutbanks cave	1.00	 Not limited 	
Oshtemo	35	'		 Very limited: Cutbanks cave	 1.00	 Not limited 	
RopC2: Riddles	 50 	Low strength		Cutbanks cave	 1.00	 Not limited 	
Oshtemo	35	'		 Very limited: Cutbanks cave	 1.00	 Not limited 	
RopD2: Riddles	 50 	Slope	0.96	Cutbanks cave		 Somewhat limited: Slope 	 0.96
Oshtemo	 35 	 Somewhat limited: Slope Frost action		Cutbanks cave	'	 Somewhat limited: Slope 	 0.96
RoqB: Riddles	 55 	Low strength		Cutbanks cave		 Not limited 	
Metea	 30 	•		 Very limited: Cutbanks cave		 Not limited 	
RoqC2: Riddles	 55 	Low strength		Cutbanks cave		 Not limited 	
Metea	 30 	•		 Very limited: Cutbanks cave		 Not limited 	

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map unit	streets	d	Shallow excavati	ons	Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoqD2: Riddles	 50 	 Somewhat limited: Slope Low strength Frost action	 0.96 0.78 0.50	 Very limited: Cutbanks cave Slope 	 1.00 0.96	 Somewhat limited: Slope 	 0.96
Metea	 30 	 Somewhat limited: Slope Frost action	 0.96 0.50		 1.00 0.96	 Somewhat limited: Slope	0.96
SdzA: Selfridge	 50 	· -	 1.00 0.75		 1.00 1.00	 Somewhat limited: Depth to saturated zone	 0.75
Crosier	 35 	Very limited: Depth to saturated zone Frost action Low strength Shrink-swell	 1.00 1.00 1.00 0.50	saturated zone Depth to dense	 1.00 0.50 0.10	 Very limited: Depth to saturated zone 	 1.00
SdzaB: Selfridge	 50 	 Very limited: Frost action Depth to saturated zone	 1.00 0.75		1.00	 Somewhat limited: Depth to saturated zone	 0.75
Brems	 35 	 Not limited 	 	 Very limited: Cutbanks cave Depth to saturated zone	 1.00 1.00 	 Somewhat limited: Droughty 	 0.01
SesA: Schoolcraft	 80 	 Somewhat limited: Shrink-swell Frost action	 0.50 0.50	 Very limited: Cutbanks cave 	1.00	 Not limited - 	
SnlA: Southwest	 75 	Depth to saturated zone Frost action Ponding Low strength	1.00	saturated zone Ponding Cutbanks cave	1.00	saturated zone Ponding	 1.00 1.00
TmpA: Tracy	 80 	•		 Very limited: Cutbanks cave 	'	 Not limited 	
TmpB: Tracy	 80 	•			1.00	 Not limited 	
TmpC2: Tracy	 80 	'		 Very limited: Cutbanks cave	1.00	 Not limited 	

Table 13b.--Building Site Development--Continued

	Pct. of map unit	streets	đ	Shallow excavations 		Lawns and landscaping	
	 	'	Value	Rating class and	Value	Rating class and limiting features	Value
TmpD: Tracy	 80 	Slope	 0.96 0.50		 1.00 0.96	 Somewhat limited: Slope	 0.96
TnwA: Troxel	 80 	Frost action	 1.00 0.78	 Somewhat limited: Cutbanks cave	 0.10	 Not limited 	
TxuA: Tyner	 85 	 Not limited 	 	 Very limited: Cutbanks cave 	 1.00	 Somewhat limited: Droughty	 0.12
TxuB: Tyner	 85 	 Not limited 	 	 Very limited: Cutbanks cave 	 1.00	 Somewhat limited: Droughty 	 0.12
TxuC: Tyner	 85 	 Not limited 	 	 Very limited: Cutbanks cave	 1.00	 Somewhat limited: Droughty	 0.12
TxuD: Tyner	 85 		 0.96	 Very limited: Cutbanks cave Slope	 1.00 0.96	-	 0.96 0.12
TxuF: Tyner	 80 	<u>. </u>	 1.00	 Very limited: Slope Cutbanks cave	 1.00 1.00	 Very limited: Slope Droughty	 1.00 0.12
Uam: Udorthents, loamy	 100	 Not rated 	 	 Not rated 	 	 Not rated 	
UdeA: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	
Bainter	40		0.50	 Very limited: Cutbanks cave	1.00	 Not limited 	
UdeB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Bainter	40		0.50	 Very limited: Cutbanks cave	1.00	 Not limited 	
UdeC: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Bainter	40	'		 Very limited: Cutbanks cave	1.00	 Not limited 	
UdkA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Brady	40 	Depth to saturated zone	1.00	saturated zone	:	 Very limited: Depth to saturated zone	1.00

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map unit	streets	d	Shallow excavati 	ons	Lawns and landscaping	
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UdzA: Urban land	50	 Not rated		 Not rated		 Not rated	
Auten	 40 	Depth to saturated zone Frost action Low strength	 1.00 1.00 1.00 0.50	Very limited: Depth to saturated zone Cutbanks cave	 1.00 1.00 	 Very limited: Depth to saturated zone 	 1.00
UeaA:	İ		ĺ	İ		İ	i
Urban land	50	Not rated		Not rated		Not rated	
Crosier	 40 	Depth to saturated zone Frost action Low strength	 1.00 1.00 1.00 0.50	Very limited: Depth to saturated zone Depth to dense layer Cutbanks cave	 1.00 0.50 0.10	 Very limited: Depth to saturated zone 	 1.00
UeqA:	 	 		 		 	
Urban land	50 	Not rated	i I	Not rated	į Į	Not rated	
Gilford	40 	Very limited: Depth to saturated zone Frost action Ponding	 1.00 1.00 1.00	Very limited: Depth to saturated zone Cutbanks cave Ponding	 1.00 1.00 1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00
UewA:	l I	 	 	 		 	
Urban land	50	 Not rated 		 Not rated 		 Not rated 	
Brems	25 	Not limited 	 	Very limited: Cutbanks cave Depth to saturated zone	 1.00 1.00	Somewhat limited: Droughty 	0.01
Morocco	 15 	 Very limited: Depth to saturated zone Frost action	 1.00 0.50	saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Droughty	 1.00 0.15
UfbA:	 	 		 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Brookston	 40 	Ponding Depth to saturated zone Frost action	 1.00 1.00 1.00 1.00 0.50		 1.00 1.00 0.10	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
UfhA:	į	į	į	į	į	į	į
Urban land	50	Not rated		Not rated		Not rated	
Coloma	 40 	 Not limited 	 	 Very limited: Cutbanks cave 	 1.00 	 Somewhat limited: Too sandy Droughty	 0.50 0.22

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	streets	d	Shallow excavations 		Lawns and landscaping 	
	 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UfhB: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40 	Not limited -		Very limited: Cutbanks cave	1.00	Somewhat limited: Too sandy Droughty	0.50
UfhC: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40 	 Not limited 	 	 Very limited: Cutbanks cave 		Somewhat limited: Too sandy Droughty	0.50
UfmA: Urban land	50	 Not rated	į Į	 Not rated		 Not rated	<u> </u>
Coupee	 40 	Low strength Shrink-swell	 1.00 0.50 0.50		 1.00 	 Not limited 	
UfrA: Urban land	 50	 Not rated 		 Not rated	 	 Not rated	
Del Rey	40 	Depth to saturated zone Frost action Low strength	1.00	saturated zone Cutbanks cave	 1.00 0.10	Very limited: Depth to saturated zone 	1.00
UftA: Urban land	50	 Not rated		 Not rated		 Not rated	
Elston	 40 	1	 0.50	 Very limited: Cutbanks cave	 1.00	 Not limited 	
UfzA: Urban land	50	 Not rated		 Not rated		 Not rated	
Mishawaka	 45 	 Not limited 		 Very limited: Cutbanks cave	1.00	 Not limited 	
UgaA: Urban land	 50	 Not rated		 Not rated	 	 Not rated	
Morocco	 40 	Depth to saturated zone	1.00	saturated zone	:	 Very limited: Depth to saturated zone Droughty	 1.00 0.15
UglA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Osolo	40 	Not limited	 		 1.00 0.24 		 0.07

Table 13b.--Building Site Development--Continued

and soil name	Pct. of	Local roads an streets	d	Shallow excavati	ons	Lawns and landsca	ping
	unit	'	Value	 		 Rating class and limiting features	Value
Trans 2							
UgrA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Rensselaer	 40 	Ponding Depth to saturated zone Frost action Low strength	 1.00 1.00 1.00 1.00 0.50	Depth to saturated zone	 1.00 1.00 1.00	 Very limited: Ponding Depth to saturated zone 	 1.00 1.00
UgsA:	 	 		 		 	
Urban land	50	Not rated		Not rated		Not rated	
Riddles	 25 	Low strength		 Very limited: Cutbanks cave	1.00	 Not limited 	
Oshtemo	 15 	1		 Very limited: Cutbanks cave 	 1.00	 Not limited 	
UgsB: Urban land	 50	 Not rated		 Not rated		 Not rated	<u> </u>
Riddles	 25 	Low strength	 0.78 0.50	:	 1.00	 Not limited 	
Oshtemo	 15 		 0.50	 Very limited: Cutbanks cave		 Not limited 	
UgvA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Tyner	 40 	 Not limited 		 Very limited: Cutbanks cave		 Somewhat limited: Droughty	0.12
UgvB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tyner	 40 	 Not limited 		 Very limited: Cutbanks cave	1.00	 Somewhat limited: Droughty	0.12
UgvC: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tyner	 40 	 Not limited 	 	 Very limited: Cutbanks cave	1.00	 Somewhat limited: Droughty	0.12
UgvD: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Tyner	 40 	!	 0.96 	 Very limited: Cutbanks cave Slope	 1.00 0.96		 0.96 0.12
UhmA:							
Urban land	50 	Not rated 	 	Not rated 		Not rated 	
Hillsdale	4 0 	'	 0.50 	Somewhat limited: Cutbanks cave	0.10	Not limited 	

Table 13b.--Building Site Development--Continued

	Pct. of	•	đ	Shallow excavati	ons	Lawns and landsca	ping
	map unit			 		 	
		Rating class and		Rating class and limiting features	:	Rating class and limiting features	Value
UhmB:	 	 	 	 		 	
Urban land	50	Not rated		 Not rated	<u> </u>	 Not rated	
Hillsdale	 40 	•		 Somewhat limited: Cutbanks cave		 Not limited 	
UhoC:			i		İ		i
Urban land	50 	Not rated	 	Not rated		Not rated	
Hillsdale	30	•		Somewhat limited: Cutbanks cave		Not limited	<u> </u>
Oshtemo		 Somewhat limited: Frost action			 1.00	 Not limited 	
UhoD:	İ		i	İ	į	İ	i
Urban land	50 	Not rated	 	Not rated		Not rated	
Hillsdale	30	Slope	0.96	: -	:	Somewhat limited: Slope	0.96
Oshtemo	 15 	Slope		:		 Somewhat limited: Slope 	 0.96
UhpC:	 	 		 		 	
Urban land	50	 Not rated		 Not rated		 Not rated	
Hillsdale	 30 	•		 Somewhat limited: Cutbanks cave		 Not limited 	
Tracy		Somewhat limited: Frost action			1.00	 Not limited 	
UhpD:			i	İ	İ	İ	i
Urban land	50 	Not rated	 	Not rated		Not rated	
Hillsdale	30 		:		:	Somewhat limited: Slope	 0.96
Tracy	 15 	Slope	 0.96 0.50	'	 1.00 0.96	 Somewhat limited: Slope 	 0.96
UhwA:	 	 	 	 	 	 	
Urban land	50	Not rated		 Not rated		 Not rated	
Martinsville	 4 0 	Low strength Shrink-swell	 0.78 0.50 0.50	•	 0.10 	 Not limited 	
	İ	İ	i	į	İ	į	İ
UhwB: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Martinsville	 40 	Low strength Shrink-swell	0.78	:	 0.10 	 Not limited 	
		Frost action	0.50		!		1

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map unit	streets	d	 Shallow excavati 	ons	Lawns and landscaping 	
	 	'		 Rating class and limiting features	'	 Rating class and limiting features	Value
UhwC:				 		 	
Urban land	 50 	 Not rated 	 	 Not rated 		 Not rated 	
Martinsville	40 	Low strength Shrink-swell		į	 0.10 	Not limited	
UkaA:	i	İ	į	İ	į	İ	į
Urban land	50	Not rated		Not rated		Not rated	
Maumee	 40 	Depth to saturated zone Ponding	1.00 1.00	saturated zone Cutbanks cave	1.00		 1.00 1.00 0.01
UkeA:		 					
Urban land	50	 Not rated		 Not rated		 Not rated	
Milford	 40 	Depth to saturated zone Frost action Low strength Ponding	1.00 1.00	saturated zone Ponding Cutbanks cave	1.00	saturated zone	 1.00 1.00
UkxA:	 	 	 	 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	
Oshtemo	 40 	'		 Very limited: Cutbanks cave	1.00	 Not limited 	
UkxB:	 	 	1	 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	
Oshtemo	 40 	1		 Very limited: Cutbanks cave	1.00	 Not limited 	
UkxC:							
Urban land	50	Not rated		Not rated		Not rated	
Oshtemo	40			 Very limited: Cutbanks cave	'	 Not limited 	
UmfB:	 	[
Urban land	50	Not rated		Not rated		Not rated	
Riddles	 25 		0.78	Cutbanks cave	'	 Not limited 	
Metea	 15 			 Very limited: Cutbanks cave 	1	 Not limited 	

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map	streets	d	Shallow excavati 	ons	Lawns and landsca	ping
	unit	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
	l		<u> </u>		1		1
UmfC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 	Low strength	 0.78 0.50		 1.00 	 Not limited 	
Metea	 15 	'	0.50	 Very limited: Cutbanks cave	1.00	 Not limited 	
UmfD:							
Urban land	50	Not rated		Not rated		Not rated	
Riddles	 25 	Slope Low strength	 0.96 0.78 0.50		 1.00 0.96	 Somewhat limited: Slope 	0.96
Metea	 15 	Slope	 0.96 0.50	'	 1.00 0.96	 Somewhat limited: Slope 	 0.96
UmpA:	İ		İ		İ		
Urban land	50	Not rated		Not rated		Not rated	
Schoolcraft	 40 	Shrink-swell	 0.50 0.50	 Very limited: Cutbanks cave 	1.00	 Not limited 	
UmuA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Southwest	40 		 1.00 	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone	1.00
	 	Ponding Low strength	1.00 1.00 0.78 0.06	Cutbanks cave	1.00 0.10 	Ponding	1.00
UmwA: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Tracy		 Somewhat limited: Frost action		 Very limited: Cutbanks cave		 Not limited 	
UmwB:	l I	 	 	 		 	1
Urban land	50	Not rated		 Not rated		 Not rated	
Tracy	 40 	'		 Very limited: Cutbanks cave	'	 Not limited 	
UmwC:	l I	 	 	 	 	 	
Urban land	50	 Not rated	İ	 Not rated 	 	 Not rated 	
Tracy	40			 Very limited: Cutbanks cave		 Not limited 	

Table 13b.--Building Site Development--Continued

		1		1			
	Pct. of map	•	d	 Shallow excavati 	ons	 Lawns and landsca 	ping
	unit	 		 		 	
	 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UmwD: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Tracy	40 	Slope	 0.96 0.50	'	 1.00 0.96	Somewhat limited: Slope 	0.96
UmxA:	i i	 		 		 	
Urban land	50	 Not rated 	 	 Not rated 		 Not rated 	
Troxel	40 	Frost action	 1.00 0.78	Somewhat limited: Cutbanks cave 	 0.10 	Not limited 	
UnoA:	į		İ	İ	į		i
Urban land	50 	Not rated 		Not rated 		Not rated 	
Whitaker	40 	Depth to saturated zone Frost action	 1.00 1.00 0.78	saturated zone	 1.00 1.00	Very limited: Depth to saturated zone 	 1.00
		Shrink-swell	0.50	 		 	
UnqB:	İ	İ	İ	İ	İ	İ	İ
Urban land	50 	Not rated	 	Not rated		Not rated	
Williamstown	25	 Very limited:	İ	 Very limited:	İ	Somewhat limited:	İ
			1.00	Depth to	1.00	Depth to	0.19
		1	0.50	saturated zone		saturated zone	
	 	!	0.50	Depth to dense	0.50	 	
		saturated zone		Cutbanks cave	0.10		
Crosier	 15	 Verv limited:	 	 Very limited:		 Very limited:	
	Ì		1.00		1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	ĺ
		!	1.00		0.50		
	l I		1.00	layer Cutbanks cave	0.10	 	
	İ						
UntA:							
Urban land	50	Not rated	 	Not rated	1	Not rated	
Wunabuna, drained	40	 Very limited:		 Very limited:		 Very limited:	
	ĺ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
			1.00		1.00		1.00
	l I	!	1.00	Content of organic matter	1.00	 	
	1		0.50		0.18	 	
	į		į		0.10		į
Usl:		 	1	 		 	
Udorthents, rubbish-	100	 Not rated		 Not rated		 Not rated	
W:	l	 	 	 		 	
Water	 100 	Not rated	 	 Not rated 		 Not rated 	i I
		1		1	1		1

Table 13b.--Building Site Development--Continued

and soil name	Pct. of map unit	streets	d	Shallow excavations 		Lawns and landscaping 	
	 	Rating class and	Value	Rating class and	Value	Rating class and limiting features	Value
W3.T							
WcnAI: Waterford	 80 	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	1.00	 Very limited: Flooding Depth to	 1.00 1.00
	į Į	Frost action	1.00	Cutbanks cave	1.00	saturated zone	į Į
WoaA:	 	 		 		 	
Williamstown	 85 	 Very limited: Low strength Shrink-swell	1.00	: -	1.00	Somewhat limited: Depth to saturated zone	0.19
	 	Frost action Depth to saturated zone	0.50	Depth to dense layer Cutbanks cave	0.50	 	
	İ		İ		İ		İ
WoaB2: Williamstown	 85 	 Very limited: Low strength	 1.00	 Very limited: Depth to	 1.00	 Somewhat limited: Depth to	 0.19
	 	Shrink-swell Frost action Depth to	0.50 0.50 0.19	saturated zone Depth to dense layer	0.50	saturated zone	
		saturated zone		Cutbanks cave	0.10		
WoaC2:	 					 	
Williamstown	80 	Very limited: Low strength Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone	 1.00 	Somewhat limited: Depth to saturated zone	 0.19
	 	Frost action Depth to saturated zone	0.50 0.19 	Depth to dense layer Cutbanks cave	0.50 0.10	 	
WobB:							
Williamstown	50	Low strength	1.00	: -	1.00	Somewhat limited: Depth to	0.19
	 	Shrink-swell Frost action Depth to	0.50 0.50 0.19	saturated zone Depth to dense layer	0.50	saturated zone	
		saturated zone		Cutbanks cave	0.10		
Crosier	 30 	 Very limited: Depth to saturated zone	1.00	 Very limited: Depth to saturated zone	1.00	 Very limited: Depth to saturated zone	1.00
		Frost action Low strength	1.00	Depth to dense	0.50		
	 	Shrink-swell	0.50	Cutbanks cave	0.10	 	
WrxAN: Wunabuna, drained	 85	 Very limited: Depth to	1.00	 Very limited: Depth to	1.00	 Very limited: Depth to	1.00
	 	saturated zone Frost action	 1.00	saturated zone	 1.00	saturated zone Ponding	1.00
	 	Low strength Ponding Shrink-swell	1.00 1.00 0.50	organic matter	1.00 0.18	 	
	i			Cutbanks cave	0.10	İ	

Table 13b.--Building Site Development--Continued

Map symbol	Pct.	Local roads an	.d	Shallow excavati	ons	Lawns and landsca	ping
and soil name	of	streets					
	map						
	unit						
		Rating class and	Value	Rating class and	Value	Rating class and	Value
		limiting features		limiting features		limiting features	
WtbA:				 		 	
Whitaker	75	Very limited:	i	 Very limited:	İ	 Very limited:	1
	1	Depth to	1.00	Depth to	1.00	Depth to	1.00
	i	saturated zone		saturated zone	1	saturated zone	1
	İ	Frost action	1.00	Cutbanks cave	1.00		i
	i	Low strength	0.78				i
	İ	Shrink-swell	0.50	İ	i		i
WujB:				 		 	
Williamstown	45	Very limited:		 Very limited:		 Somewhat limited:	
	ì	Low strength	1.00	Depth to	1.00	Depth to	0.19
	ì	Shrink-swell	0.50	saturated zone	İ	saturated zone	i
	ĺ	Frost action	0.50	Depth to dense	0.50		İ
	ĺ	Depth to	0.19	layer	Ì		İ
		saturated zone		Cutbanks cave	0.10		İ
Moon	40	Somewhat limited:		 Very limited:		Somewhat limited:	
	İ	Frost action	0.50	Depth to	1.00	Depth to	0.03
	İ	Depth to	0.03	saturated zone	i	saturated zone	i
	i	saturated zone	i	Cutbanks cave	1.00		i

Table 14a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct.	Septic tank absorption fiel	ds	Sewage lagoons	1
	map	absorption fiel	us.	 	
	unit			 	
		Rating class and	Value	Rating class and	Value
		limiting features		limiting features	
AahAK:		 			
Abscota	80	 Very limited:	i	 Very limited:	i
		Flooding	1.00	Flooding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone	i	Depth to	1.00
		Filtering capacity	1.00	saturated zone	<u> </u>
AatAN:				 	
Ackerman, drained	85	Very limited:	İ	Very limited:	
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone	İ	Depth to	1.00
		Filtering	1.00	saturated zone	
		capacity		Content of	1.00
		 		organic matter	
AbhAN:					
Adrian, drained	75	Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Filtering	1.00	saturated zone	
		capacity		Content of	1.00
		Subsidence	1.00	organic matter	
AbhAU:	ĺ		į		į
Adrian, undrained	75			Very limited:	
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Filtering	1.00	saturated zone	
		capacity	1 00	Content of	1.00
		Subsidence	1.00	organic matter	
ApuAN:	75				
Antung, drained	75	Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone	1.00	Depth to saturated zone	1.00
		capacity	1	Content of	1.00
		capacity		organic matter	
AxvA:		 		 	
Auten	82	 Very limited:		 Very limited:	İ
			1.00		1.00
		saturated zone	i	Depth to	1.00
		Filtering	1.00	saturated zone	ĺ

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.	absorption fiel	ds	Sewage lagoons	
	map				
	unit	'	1	1	1
		Rating class and limiting features	'	Rating class and limiting features	Value
	1	IIMICING Teacures	1	IIMITTING TEATURES	1
BaaA:		 		 	
Bainter	85	Very limited:	i	 Very limited:	i
	j	Filtering	1.00	Seepage	1.00
		capacity			
		Restricted	0.46		
		permeability			
DD					
BaaB: Bainter	85	 Very limited:		 Very limited:	
bainter	03	Filtering	1.00	Seepage	1.00
	i	capacity		Slope	0.08
	i	Restricted	0.46		
	į	permeability	i	İ	i
		ĺ	İ	ĺ	
BaaC2:					
Bainter	85	Very limited:	'	Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00
		Restricted	0.46	 	1
	1	permeability		 	1
BbmA:	i				
Baugo	85	Very limited:	i	 Very limited:	i
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	0.01
		Filtering	1.00	saturated zone	
		capacity			
		Restricted	0.46		
		permeability		 	
BmgA:	1	 		 	1
Blount	85	Very limited:		Somewhat limited:	
	ĺ	Restricted	1.00	Depth to	0.01
	j	permeability	į	saturated zone	İ
		Depth to	1.00		
		saturated zone			
BshA:					
Brady	90	Very limited:	1.00	Very limited: Seepage	1.00
				seepage	1.00
	1	Depth to	1	Depth to	1.00
	 	saturated zone	į	Depth to saturated zone	1.00
	 		1.00		1.00
	 	saturated zone	į		1.00
BsxA:	 	saturated zone	į		1.00
BsxA: Brems	 50	saturated zone Filtering capacity Very limited:	 1.00 		
	 50	saturated zone Filtering capacity Very limited: Depth to	 1.00 	saturated zone	 1.00
	 50	saturated zone Filtering capacity Very limited: Depth to saturated zone	 1.00 1.00	saturated zone Very limited: Seepage Depth to	
	 50	saturated zone Filtering capacity Very limited: Depth to saturated zone Filtering	 1.00 	saturated zone Very limited: Seepage Depth to	 1.00
	 50 	saturated zone Filtering capacity Very limited: Depth to saturated zone	 1.00 1.00	saturated zone Very limited: Seepage Depth to	 1.00
Brems	 	saturated zone Filtering capacity Very limited: Depth to saturated zone Filtering capacity	 1.00 1.00 1.00	saturated zone	 1.00
	 	saturated zone Filtering capacity Very limited: Depth to saturated zone Filtering capacity Very limited:	 1.00 1.00 1.00	saturated zone	 1.00
Brems	 	saturated zone Filtering capacity Very limited: Depth to saturated zone Filtering capacity	 1.00 1.00 1.00	saturated zone	 1.00 1.00
Brems	 	saturated zone Filtering capacity Very limited: Depth to saturated zone Filtering capacity Very limited: Depth to	 1.00 1.00 1.00	saturated zone Very limited: Seepage Depth to saturated zone Very limited: Seepage	 1.00 1.00

Table 14a.--Sanitary Facilities--Continued

	Pct.		.ds	Sewage lagoons	3
	map	-			
	unit	İ			
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
BteA:					
Brems	80	Very limited: Depth to	1.00	Very limited:	1.00
	l I	saturated zone	1.00	Seepage Depth to	1.00
	 	Filtering	1.00	saturated zone	1.00
		capacity			
BuuA:	 	 		 	
Brookston	80	Very limited:	į	Very limited:	İ
		Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	Restricted permeability	1.00	Seepage 	0.53
	į		į		į
CmbAI: Cohoctah	 75	 Very limited:	1	 Very limited:	1
Conoctan	/3 	Flooding	1.00	Flooding	1.00
		Depth to	1.00	Seepage	1.00
	İ	saturated zone	i	Depth to	1.00
	i	Filtering	1.00	saturated zone	i
		capacity		 -	
CnbA:				 	
Coloma	85	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
	 	capacity		 	
CnbB:	į		į		į
Coloma	85	Very limited:	:	Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity		Slope 	0.32
CnbC:					
Coloma	65	Very limited: Filtering	1.00	Very limited: Seepage	1.00
		capacity		Slope	1.00
	į		į	_	į
CnbD: Coloma	 85	 Very limited:		 Very limited:	
COTOMA	03	Filtering	1.00	Slope	1.00
	İ	capacity		Seepage	1.00
	İ	Slope	0.96		į
CrrA:	 	 		[
Coupee	85	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity			
	 	Restricted permeability	0.46	 	
	İ		į		į
CvdA: Crosier	 85	 Very limited:		Somewhat limited:	
		Depth to	1.00		0.01
	İ	saturated zone	İ	saturated zone	i
	I	Restricted	1.00		İ

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct.	absorption fiel	ds	Sewage lagoons	3
	map unit			 	
	unit	'		Rating class and limiting features	Value
CvdB: Crosier	 80	 Very limited:		 Somewhat limited:	
0200202		Depth to	1.00		0.08
	İ	saturated zone	į	Depth to	0.01
	 	Restricted permeability	1.00	saturated zone	İ
CwkA:		 -			
Crumstown	 80	 Very limited:		 Very limited:	
	ĺ	Filtering	1.00	_	1.00
		capacity	İ	Depth to	0.02
		Depth to	0.65	saturated zone	
	 	saturated zone		 	
CwkB:					
Crumstown	80	Very limited:	:	Very limited:	
		Filtering	1.00		1.00
	 	capacity	10.65	Slope	0.08
	 	Depth to saturated zone	0.65	Depth to saturated zone	0.02
	ĺ		į		į
DcrA: Del Rey	 85	 Very limited:		Somewhat limited:	
201 1107		Restricted	1.00	•	0.01
	İ	permeability	i	saturated zone	i
		Depth to	1.00		
		saturated zone			
EchAN:		 			
Edwards, drained	80	Very limited:		Very limited:	
		Restricted	1.00	_	1.00
	 	permeability	11 00	Depth to	1.00
	l I	Ponding Depth to	1.00 1.00	saturated zone Seepage	1.00
	 	saturated zone		Content of	1.00
	 	 	į	organic matter	
EchAU:		 			
Edwards, undrained	75	: -	:	Very limited:	
		Restricted	1.00		1.00
		permeability		Depth to	1.00
	l I	Ponding Depth to	1.00		1.00
		saturated zone		organic matter	
EcrAN:	 	 		 	
Edselton, drained	70	 Very limited:		 Very limited:	
		Restricted	1.00	Ponding	1.00
		permeability		Seepage	1.00
		Ponding	1.00	Depth to	1.00
	l I	Depth to	1.00	saturated zone Content of	1 00
	I	saturated zone	I	CONCENT OF	1.00
	I	Filtering	1.00	organic matter	1

Table 14a.--Sanitary Facilities--Continued

	Pct.		a	 Sewage lagoons	
	of	-	ds		
	map				
	unit	·	1	<u> </u>	1
			'	Rating class and	Value
	<u> </u>	limiting features	1	limiting features	1
EcrAU:	 	 	l I	 	
Edselton, undrained-	 70	 Town limited.	l I	 Very limited:	
Edserton, undramed-	70 	Restricted	1.00	Ponding	1.00
	l I	permeability	1	Seepage	1.00
	l I	Ponding	1.00	Depth to	1.00
	l I	Depth to	1.00	saturated zone	1
		saturated zone	1	Content of	1.00
	İ	Filtering	1.00	organic matter	
	İ	capacity	i		i
	i	İ	i		i
EmeA:		İ	İ		İ
Elston	85	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity			
GczA:					
Gilford	75	Very limited:		Very limited:	
		Depth to	1.00		1.00
		saturated zone		Depth to	1.00
		Filtering	1.00	saturated zone	
		capacity		Ponding	1.00
		Ponding	1.00	l I	
GdnA:	 	 	l I	 	
Gilford	 75	 Very limited:	1	 Very limited:	1
GIIIOIQ	/3	Depth to	1.00		1.00
	 	saturated zone	1	Depth to	1.00
	 	Filtering	1.00	saturated zone	1
	İ	capacity		Ponding	1.00
	İ	Ponding	1.00		i
	İ	İ	İ		İ
HfbAN:		İ	İ		İ
Henrietta, drained	80	Very limited:		Very limited:	
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
		Ponding	1.00	Ponding	1.00
		Restricted	0.50	Content of	1.00
		permeability		organic matter	!
				Seepage	0.50
11.61. 3.11 .		 		l I	
HfbAU:	 75	 Very limited:	I	 Very limited:	1
Henrietta, undrained	, 5 	Ponding	1.00	Very limited: Ponding	1.00
	l I	Depth to		Depth to	1.00
	 	saturated zone	1	saturated zone	1
		Subsidence	1.00	Content of	1.00
	İ	Restricted	0.50	'	
	İ	permeability	İ	Seepage	0.50
	İ	i	i		i
HkkA:					
Hillsdale	80	Somewhat limited:		Very limited:	
		Restricted	0.46	Seepage	1.00
		permeability			
					1
	 				!
HkkB:	 			 	
HkkB: Hillsdale	 80	•		 Very limited:	
	 80	 Somewhat limited: Restricted permeability	0.46		 1.00 0.08

Table 14a.--Sanitary Facilities--Continued

	Pct.	· -	.ds	Sewage lagoons	
	map	-			
	unit				
		Rating class and limiting features		Rating class and	Value
	<u> </u>	limiting reatures	1	limiting features	1
HknC2:	i	İ			İ
Hillsdale	55	Somewhat limited:		Very limited:	
		Restricted permeability	0.46	Seepage Slope	1.00
	i	permeability		Blope	
Oshtemo	30	Very limited:	İ	Very limited:	İ
		Filtering	1.00		1.00
	 	capacity		Slope 	1.00
HknD2:	i				
Hillsdale	55	Somewhat limited:		Very limited:	
		Slope	0.96	-	1.00
	 	Restricted permeability	0.46	Seepage	1.00
	i		i		
Oshtemo	30	Very limited:		Very limited:	
		Filtering	1.00	· -	1.00
	 	capacity Slope	0.96	Seepage	1.00
	i				
HkpC2:		ĺ		ĺ	
Hillsdale	55	Somewhat limited:		Very limited:	
		Restricted permeability	0.46	Seepage Slope	1.00
	i	permeability			
Tracy 3	30	Very limited:	İ	Very limited:	İ
		Filtering	1.00	· -	1.00
	 	capacity Restricted	0.46	Seepage	0.53
	i	permeability			i
		!		<u> </u>	
HkpD2: Hillsdale		 Somewhat limited:		 Very limited:	
HIIIBUAIE	33	Slope	0.96		1.00
	i	Restricted	0.46	Seepage	1.00
		permeability			
Tracy	 30	 Very limited:		 Very limited:	
iracy	30	Filtering	1.00		1.00
	į	capacity	İ	Seepage	0.53
		Slope	0.96		
		Restricted permeability	0.46		
	İ	permeability		 	
HtbAN:	į	İ	İ	İ	İ
Houghton, drained	75		:	Very limited:	
	 	Ponding Depth to	1.00 1.00		1.00
	İ	saturated zone		organic matter	
	į	Subsidence	1.00	Depth to	1.00
				saturated zone	
	1	 	 	Seepage 	1.00
HtbAU:	i				
ii corio .	75	Very limited:		Very limited:	
Houghton, undrained-			1.00	Ponding	1.00
		Ponding	:		
		Depth to	1.00	Content of	1.00
	 		:	Content of organic matter	

Table 14a.--Sanitary Facilities--Continued

	Pct.	· -	ds	Sewage lagoons	1
	map	-		İ	
	unit	·			
	 	Rating class and limiting features	Value	Rating class and limiting features	Value
JaaAK:	 	 		 	
Jamestown	80	Very limited:	i	Very limited:	i
		Flooding	1.00		1.00
		Depth to	1.00	Seepage	1.00
	l I	saturated zone	1.00	 	
		capacity			i
		Restricted	0.46		
	 	permeability		 	
MfaA:			į		į
Martinsville	70	:		Somewhat limited:	
	l I	Restricted permeability	0.46	Seepage 	0.53
					į
MfaB2: Martinsville	 70	 Somewhat limited:		Somewhat limited:	
		Restricted	0.46		0.53
		permeability	į	Slope	0.08
MfaC2:	 	 		 	
Martinsville	80	Somewhat limited:		Very limited:	ĺ
		Restricted	0.46	Slope	1.00
	 	permeability		Seepage 	0.53
Mfran:			į		į
Madaus, drained	80	Very limited:	:	Very limited:	11 00
	l I	Restricted permeability	1.00	Ponding Seepage	1.00
		Ponding	1.00	Depth to	1.00
		Depth to	1.00	saturated zone	
		saturated zone		Content of	1.00
	 	Filtering capacity	1.00	organic matter	
MfrAU:				 -	
Madaus, undrained	 75	 Very limited:		 Very limited:	
		Restricted	1.00	Ponding	1.00
		permeability		Seepage	1.00
	 	Ponding Depth to	1.00	Depth to saturated zone	1.00
		saturated zone		Content of	1.00
	İ	Filtering	1.00	organic matter	į
		capacity		 	
MgcA:					
Maumee	80	Very limited:	:	Very limited:	
	l I	Depth to saturated zone	1.00	Seepage Depth to	1.00
	İ	Filtering	1.00	saturated zone	
		capacity		Ponding	1.00
	 	Ponding	1.00	 	
MgdAN:					
Martisco, drained	75			Very limited:	
	 	Restricted permeability	1.00	Ponding Depth to	1.00
	 	Ponding	1.00	saturated zone	1.00
	i	Depth to	1.00	Content of	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	-	.ds	Sewage lagoons	1
	map				
	unit	'			
	 	Rating class and limiting features		Rating class and limiting features	Value
MhaA:					
Maumee	80	Very limited:		Very limited:	
	 	Depth to	1.00		1.00
	l I	saturated zone Filtering	1.00	Depth to saturated zone	1.00
		capacity		Ponding	1.00
		Ponding	1.00		
MhbA:]		 	
Maumee	90	Very limited:		Very limited:	
		Ponding	1.00	Ponding	1.00
	ļ	Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Filtering capacity	1.00 	saturated zone	
MmbC2:	 	 		 	
Miami	80	Very limited:	i	Very limited:	i
		Depth to	1.00	Slope	1.00
		saturated zone		Depth to	0.81
		Restricted	1.00	saturated zone	
	 	permeability		Seepage 	0.53
MmdC3: Miami	80	 Very limited:	İ	 Very limited:	
MIUMI	00	Depth to	1.00		1.00
	i	saturated zone		Depth to	0.81
	İ	Restricted	1.00	saturated zone	i
		permeability		Seepage	0.53
MmdD3:					
Miami	80	Very limited:		Very limited:	
	 	Depth to	1.00		1.00
	l I	saturated zone	1.00	Depth to saturated zone	0.81
	 	permeability	1	Seepage	0.53
		Slope	0.96		
MouA:		 		 	
Milford	85	Very limited:		Very limited:	
		Depth to	1.00		1.00
		saturated zone		saturated zone	
		Restricted	1.00	Ponding	1.00
		permeability Ponding	1.00	 	
MsaA:	 	 		 	
Mishawaka	95	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity		 	
MtsB2: Morley	75	 	İ	 Somewhat limited:	
MOT TEA	/3	Depth to	1.00	•	0.32
	i	saturated zone		Depth to	0.32
	i	Restricted	1.00	saturated zone	
	i	permeability	İ	i	i
	i	i -	i	i	i

Table 14a.--Sanitary Facilities--Continued

Rating class and limiting features Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Pepth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Fonding Depth to saturated zone Filtering capacity	Value	Rating class and limiting features Very limited: Slope Depth to saturated zone	Value									
Rating class and limiting features	 1.00 1.00 1.00 1.00 1.00 1.00 1.00	limiting features	 1.00 0.25 1.00 0.25 1.00 1.00 1.00									
limiting features	 1.00 1.00 1.00 1.00 1.00 1.00 1.00	limiting features	 1.00 0.25 1.00 0.25 1.00 1.00 1.00									
Depth to saturated zone Restricted permeability Slope Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	1.00	Slope Depth to saturated zone	0.25 1.00 turated zone Restricted permeability Slope Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	1.00	Slope Depth to saturated zone	0.25 1.00 turated zone Restricted permeability Slope Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	1.00	Slope Depth to saturated zone	0.25 1.00 permeability Slope Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity		saturated zone	 1.00 1.00 1.00
permeability Slope		Very limited: Slope Depth to saturated zone	0.25 1.00 1.00									
Slope	 1.00 1.00 1.00 1.00 1.00	Slope Depth to saturated zone 	0.25 1.00 1.00									
Very limited: Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00 1.00 1.00 1.00	Slope Depth to saturated zone 	0.25 1.00 1.00									
Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00 1.00 1.00 1.00	Slope Depth to saturated zone 	0.25 1.00 1.00									
Depth to saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00 1.00 1.00 1.00	Slope Depth to saturated zone 	0.25 1.00 1.00									
saturated zone Restricted permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00 1.00 1.00 1.00	Depth to saturated zone Very limited: Ponding Seepage Depth to saturated zone Content of	0.25 1.00 1.00									
permeability Slope Very limited: Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00 1.00	saturated zone	1.00									
Slope 	 1.00 1.00 1.00	Ponding Seepage Depth to saturated zone Content of	1.00									
	 1.00 1.00 1.00	Ponding Seepage Depth to saturated zone Content of	1.00									
Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00	Ponding Seepage Depth to saturated zone Content of	1.00									
Restricted permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00	Ponding Seepage Depth to saturated zone Content of	1.00									
permeability Ponding Depth to saturated zone Filtering capacity	 1.00 1.00	Seepage Depth to saturated zone Content of	1.00									
Ponding Depth to saturated zone Filtering capacity	1.00	Depth to saturated zone Content of	1.00									
Depth to saturated zone Filtering capacity	1.00	saturated zone Content of										
Filtering capacity 	1.00	!	1.00									
capacity	1.00 	organic matter										
 		I .	1									
37 a ann 2 d and 4 - 3	İ	I	İ									
Very limited:	!	Very limited:										
Restricted permeability	1.00	Ponding Seepage	1.00									
Ponding	1.00	Depth to	1.00									
Depth to	1.00	saturated zone	i									
saturated zone		Content of	1.00									
Filtering capacity	1.00	organic matter										
capacity												
Very limited: Depth to	1.00	Very limited: Seepage	1.00									
saturated zone		Depth to	1.00									
Filtering	1.00	saturated zone	i									
capacity												
Very limited:	i	Very limited:	i									
Restricted	1.00	,	1.00									
: -			1.00									
-	'	•	1.00									
saturated zone		Content of	1.00									
Subsidence	1.00	organic matter	į									
Very limited:	İ	Very limited:	i									
	1.00		1.00									
Restricted		Depth to	1.00									
permeability		saturated zone	1.00									
permeability Ponding	1.00	Content of	1 - 0 0 0									
permeability		Content of organic matter	i									
	Subsidence Very limited: Restricted	Ponding	Ponding									

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of	absorption fiel	ds	Sewage lagoons	3
	map				
	unit 	'		 Rating class and limiting features	Value
	<u> </u>				1
OkrA: Oshtemo	 80 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage	1.00
OkrB: Oshtemo	 80 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage Slope	1.00
OkrC2: Oshtemo	 80 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage Slope	 1.00 1.00
OkrD: Oshtemo	 80 	 Very limited: Filtering capacity Slope	 - 1.00 0.96	 Very limited: Slope Seepage	 1.00 1.00
OlcA: Oshtemo	 80 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage 	 1.00
OlcB: Oshtemo	 80 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage Slope	1.00
OlcC2:	 80 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage Slope	 1.00 1.00
OlcD: Oshtemo	 80 	 Very limited: Filtering capacity Slope	 1.00 0.96	 Very limited: Slope Seepage 	 1.00 1.00
OmgA: Osolo	 85 	 Very limited: Filtering capacity Depth to saturated zone	 1.00 0.65	 Very limited: Seepage Depth to saturated zone	 1.00 0.02
PaaAN: Palms, drained	 80 	 Very limited: Depth to saturated zone Subsidence	1.00 1.00	saturated zone	 1.00 1.00
	 	Ponding Restricted permeability	1.00 0.72 	Content of organic matter Seepage	1.00 0.28

Table 14a.--Sanitary Facilities--Continued

	Pct. of	_	ds	Sewage lagoons	3
	map unit			 	
		Rating class and limiting features	Value	Rating class and limiting features	Value
PaaAU:	 	 		 	
Palms, undrained	75	Very limited: Ponding	1.00	 Very limited: Ponding	1.00
	 	Depth to saturated zone	1.00		1.00
		Subsidence	1.00	Content of	1.00
	 	Restricted permeability	0.72	organic matter Seepage	0.28
Pmg:	 	 		 	
Pits, gravel	100 	Not rated 		Not rated 	
PxlA: Psammaquents	 85 	 Not rated		 Not rated	
Pxo:	 85	 Not rated	 	 Not rated	
QuiA:	 	 		 	
Quinn	80 	Very limited: Depth to	 1.00	Very limited: Seepage	 1.00
		saturated zone			
	 	Filtering capacity	1.00	 	
	l I	Restricted permeability	0.46	 	İ
QujA:] 		 	
Quinn	75	Very limited: Depth to	1.00	Very limited: Seepage	1.00
		saturated zone		beepage	
		Filtering	1.00		
	 	capacity Restricted	0.46	 	
	 	permeability	į	 	
RenA: Rensselaer	 95	 Very limited:		 Very limited:	
Remberaer	03	Restricted	1.00		1.00
		permeability		Depth to	1.00
	 	Ponding Depth to	1.00	saturated zone Seepage	0.53
	 	saturated zone		 	
ReyA:	 75	 	į	 	į
Rensselaer	/5	Restricted	1.00	Very limited: Ponding	1.00
	į	permeability	į	Depth to	1.00
	 	Ponding Depth to	1.00	saturated zone Seepage	0.53
	 	saturated zone		Beepage 	
RopA:		 		 Somewhat limited:	
Riddles	50	Restricted	1.00	'	0.53
		permeability		- -	
Oshtemo	35	 Very limited:		 Very limited:	
		Filtering	1.00		1.00
		capacity			

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct.	-	.ds	Sewage lagoons		
	map					
	unit					
		Rating class and	Value	Rating class and	Value	
		limiting features	'	limiting features	varue	
RopB:						
Riddles	50	Very limited:		Somewhat limited:		
		Restricted	1.00		0.53	
	1	permeability	1	Slope	0.08	
Oshtemo	35	 Very limited:		 Very limited:		
	į	Filtering	1.00	Seepage	1.00	
	ĺ	capacity	İ	Slope	0.08	
		!				
RopC2: Riddles		 Vorm: limited:		 Very limited:		
RIGGIES	50	Restricted	1.00		1.00	
	 	permeability	1	Seepage	0.53	
	i	permeability		beepage		
Oshtemo	35	Very limited:		 Very limited:	ĺ	
		Filtering	1.00	Seepage	1.00	
		capacity		Slope	1.00	
Dem D2 -				1		
RopD2: Riddles	50	 Very limited:	1	 Very limited:	1	
112 442 05		Restricted	1.00		1.00	
	i	permeability		Seepage	0.53	
	i	Slope	0.96		i	
Oshtemo	35	Very limited:		Very limited:		
		Filtering	1.00		1.00	
	1	capacity Slope	0.96	Seepage	1.00	
		Slope		 		
RoqB:	İ	İ	i	İ	İ	
Riddles	55	Very limited:		Somewhat limited:		
		Restricted	1.00	Seepage	0.53	
		permeability		Slope	0.08	
Metea	30	 Very limited:		 Very limited:		
		Filtering	1.00		1.00	
	i	capacity		Slope	0.08	
	į	Restricted	1.00	_ 	i	
		permeability				
RogC2:	 	 		 		
Riddles	55	 Very limited:		 Very limited:		
	i	Restricted	1.00		1.00	
		permeability	İ	Seepage	0.53	
Metea	30	Very limited: Filtering	1.00	Very limited: Seepage	1.00	
		capacity		Slope	1.00	
	i	Restricted	1.00			
	İ	permeability			i	
		!				
RoqD2:		 Vom: limited		 Vorm limited		
Riddles	50	Very limited:	1 00	Very limited:	1 00	
	I I	Restricted permeability	1.00	Slope Seepage	1.00	
	1	Slope	0.96		0.55	
	1	1 STOPC	10.50] 	1	

Table 14a.--Sanitary Facilities--Continued

	Pct.	· -	da	Sewage lagoons	:
	map	-	.us	 	
	unit				
	1	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features		limiting features	
DD0					
RoqD2: Metea	 30	 Very limited:	I	 Very limited:	l I
neceu	30	Filtering	1.00		1.00
	İ	capacity		Seepage	1.00
	İ	Restricted	1.00		i
		permeability			
		Slope	0.96		
SdzA:	 	 		 	
Selfridge	50	 Very limited:		 Very limited:	
		Depth to	1.00		1.00
	İ	saturated zone	i	Depth to	0.22
	İ	Restricted	1.00	saturated zone	İ
		permeability			
		Filtering	1.00		
		capacity			
Crosier	 35	 Very limited:		 Somewhat limited:	
0200202		Depth to	1.00		0.01
	İ	saturated zone		saturated zone	
	i	Restricted	1.00		İ
		permeability			
SdzaB:	 	 		 	
Selfridge	50	 Very limited:		 Very limited:	
	i	Depth to	1.00		1.00
İ		saturated zone		Depth to	0.22
		Restricted	1.00	saturated zone	
		permeability		Slope	0.08
		Filtering	1.00		
	 	capacity		l I	
Brems	35	 Very limited:		 Very limited:	
	İ	Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Filtering	1.00	saturated zone	
		capacity		Slope	0.08
SesA:	 	 		 	
Schoolcraft	80	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity			
		Restricted	0.50		
	 	permeability		 	
SnlA:	İ	İ			
Southwest	75	Very limited:		Very limited:	
		Depth to	1.00		1.00
		saturated zone		saturated zone	
		Restricted	1.00		1.00
		permeability Ponding	1.00	Seepage 	0.53
	į	<u> </u>	į		į
TmpA: Tracy	80	 Very limited:		Somewhat limited:	
11acy	00 	Very limited: Filtering	1.00		0.53
	l I	capacity	1.00	 	
	İ	Restricted	0.46		ĺ
	i	permeability	İ		ĺ
		· -			

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons 	
	unit 	·	Value	 Rating class and limiting features	Value
TmpB: Tracy	 80 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.46	 Somewhat limited: Seepage Slope 	 0.53 0.08
TmpC2: Tracy	 80 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.46	 Very limited: Slope Seepage	 1.00 0.53
TmpD: Tracy	 80 	 Very limited: Filtering capacity Slope Restricted permeability	 1.00 0.96 0.46	 Very limited: Slope Seepage 	 1.00 0.53
TnwA: Troxel	 80 	 Somewhat limited: Restricted permeability	 0.46	 Somewhat limited: Seepage	0.53
TxuA:	 85 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage	 1.00
TxuB: Tyner	 85 	Very limited: Filtering capacity	 1.00	 Very limited: Seepage Slope	1.00
TxuC: Tyner	 85 	 Very limited: Filtering capacity	 1.00	 Very limited: Seepage Slope	 1.00 1.00
TxuD: Tyner	 85 		 1.00 0.96	 Very limited: Slope Seepage	 1.00 1.00
TxuF: Tyner	 80 	 Very limited: Filtering capacity Slope	 1.00 1.00	 Very limited: Slope Seepage 	 1.00 1.00
Uam: Udorthents, loamy	 100	 Not rated 	 	 Not rated 	

Table 14a.--Sanitary Facilities--Continued

	Pct. of	-	ds	Sewage lagoons	3
	map				
	unit 	'		 Rating class and limiting features	Value
	ļ]
UdeA: Urban land	 50 	 Not rated 	 	 Not rated 	
Bainter	 40 	Filtering capacity		 Very limited: Seepage 	1.00
	İ	permeability	İ		i
UdeB:					
Urban land	50	 Not rated		 Not rated	
Bainter	 40 		 1.00	 Very limited: Seepage	 1.00
	 	capacity Restricted permeability	 0.46 	Slope 	0.08
UdeC:					
Urban land	50 	Not rated		Not rated	
Bainter	 40 	Very limited: Filtering capacity Restricted permeability		Very limited: Seepage Slope	 1.00 1.00
77.31-3				 	
UdkA: Urban land	 50	 Not rated	 	 Not rated	
Brady	 40 	Depth to saturated zone		 Very limited: Seepage Depth to saturated zone	 1.00 1.00
UdzA:	İ		İ		İ
Urban land	50 	Not rated		Not rated 	
Auten	40 	saturated zone	1.00	Very limited: Seepage Depth to saturated zone	 1.00 1.00
UeaA: Urban land	 50	Not rated		 Not rated	
Crosier	 40 	Depth to saturated zone	'	 Somewhat limited: Depth to saturated zone	 0.01
		permeability			

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map	absorption fiel	ds	Sewage lagoons 	ı
	map unit			 	
	 	'		Rating class and limiting features	Value
77 3		1		1	
UeqA: Urban land	 50 	 Not rated 	 	 Not rated 	
Gilford	40	 Very limited:	İ	 Very limited:	
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
			1.00		
		capacity Ponding	1.00	Ponding 	1.00
UewA:	 	 	 	 	
Urban land	 50 	 Not rated 	 	 Not rated 	
Brems	25	 Very limited:		 Very limited:	
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
		Filtering capacity	1.00	saturated zone	
Morocco	 15	 Very limited:		 Very limited:	
	ĺ	Depth to	1.00	: -	1.00
	İ	saturated zone	į	Depth to	1.00
	 	Filtering capacity	1.00 	saturated zone	
UfbA:	 	 	 	 	
Urban land	50	Not rated		Not rated	İ
Brookston	40	 Very limited:		 Very limited:	
	ĺ	Ponding	1.00	Ponding	1.00
		Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone	
	 	Restricted permeability	1.00	Seepage	0.53
UfhA:	 	 		 	
Urban land	50	 Not rated 	 	Not rated	
Coloma	40	Very limited:	į	Very limited:	İ
	 	Filtering capacity	1.00 	Seepage	1.00
Hebp.					
UfhB: Urban land	 50	 Not rated		 Not rated	
Coloma	 40	 Very limited:	 	 Very limited:	
	i		1.00		1.00
	 	capacity	i I	Slope	0.32
UfhC:	İ	İ	İ		i
Urban land	50 	Not rated 	 	Not rated 	
Coloma	40	Very limited:		Very limited:	
		Filtering	1.00	Seepage	1.00
		capacity		Slope	1.00

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	absorption fiel	ds	Sewage lagoons 		
		'	Value	Rating class and limiting features	Value	
UfmA: Urban land	 50	 Not rated	 	 Not rated 	 	
Coupee	 40 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.46 	 Very limited: Seepage 	 1.00 	
UfrA: Urban land	 50	 Not rated	 	 Not rated	 	
Del Rey	 40 	 Very limited: Restricted permeability Depth to saturated zone	 1.00 1.00 	 Somewhat limited: Depth to saturated zone 	 0.01 	
UftA: Urban land	 50	 Not rated	 	 Not rated	 	
Elston	 40 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage 	1.00	
UfzA: Urban land	 50	 Not rated		 Not rated		
Mishawaka	 45 		:	 Very limited: Seepage 	 1.00 	
UgaA: Urban land	 50	 Not rated	 	 Not rated 		
Morocco	 40 	Very limited: Depth to saturated zone Filtering capacity	 1.00 1.00	Depth to	 1.00 1.00 	
UglA: Urban land	 50	 Not rated		 Not rated		
Osolo	 40 	 Very limited: Filtering capacity Depth to saturated zone	 1.00 0.65	 Very limited: Seepage Depth to saturated zone 	 1.00 0.02 	
UgrA: Urban land	 50	 Not rated	 	 Not rated		
Rensselaer	 40 	 Very limited: Restricted permeability Ponding Depth to saturated zone	 1.00 1.00 1.00	 Very limited: Ponding Depth to saturated zone Seepage	 1.00 1.00 0.53	

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map		ds	 Sewage lagoons 	
	unit	 		 	
	 	·	:	Rating class and limiting features	Value
Urban land	 50 	 Not rated 	 	 Not rated 	
Riddles	 25 	Very limited: Restricted 1 permeability		Somewhat limited: Seepage	0.53
Oshtemo	 15 	Very limited:		 Very limited: Seepage 	 1.00
UgsB: Urban land	 50	 Not rated	 	 Not rated	
Riddles	 25 		 	Somewhat limited: Seepage Slope	0.53
Oshtemo	 15 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage Slope	 1.00 0.08
UgvA: Urban land	 50	 Not rated 	 	 Not rated 	
Tyner	40 	Very limited: Filtering capacity	 1.00 	 Very limited: Seepage 	 1.00
UgvB: Urban land	 50	 Not rated 	 	 Not rated 	
Tyner	 40 		 1.00 	 Very limited: Seepage Slope	 1.00 1.08
UgvC: Urban land	 50	 Not rated	 	 Not rated	
Tyner	 40 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage Slope	 1.00 1.00
UgvD: Urban land	 50	 Not rated	 	 Not rated	
Tyner	40 	Filtering capacity	 1.00 0.96	Seepage	 1.00 1.00
UhmA: Urban land	 50	 Not rated	 	 Not rated	
Hillsdale	 40 	•	 0.46 	 Very limited: Seepage 	 1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	-		Sewage lagoons 		
	map					
	unit	·	1 -		1 -	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	
UhmB:	 	 	 	 		
Urban land	50	Not rated	İ	Not rated	İ	
Hillsdale	40	Somewhat limited:		 Very limited:		
	 	Restricted permeability	0.46	Seepage Slope	1.00	
UhoC:	 	 		 		
Urban land	50	 Not rated	į	 Not rated		
Hillsdale	30		:	 Very limited:		
	 	Restricted permeability	0.46	Seepage Slope	1.00	
	i	İ				
Oshtemo	15	Very limited: Filtering	1.00	Very limited: Seepage	1.00	
		capacity		Slope	1.00	
UhoD:		 	 	 		
Urban land	50	Not rated	į	Not rated		
Hillsdale	30	 Somewhat limited:		 Very limited:		
		Slope	0.96	Slope	1.00	
		Restricted permeability	0.46	Seepage	1.00	
Oshtemo	 15	 Very limited:		 Very limited:		
		Filtering	1.00	Slope	1.00	
	 	capacity Slope	 0.96	Seepage 	1.00	
UhpC:		 		 		
Urban land	50	 Not rated 		 Not rated 		
Hillsdale	30	Somewhat limited:		Very limited:	į	
	 	Restricted permeability	0.46	Seepage Slope	1.00	
	į		į	_	į	
Tracy	15	Very limited: Filtering	1.00	Very limited: Slope	1.00	
	i	capacity		Seepage	0.53	
		Restricted	0.46			
		permeability		 		
UhpD: Urban land		Not rated	į	 Not rated	İ	
ordan rand						
Hillsdale	30	Somewhat limited:	 0.96	Very limited: Slope	1.00	
	i	Restricted	0.46	Seepage	1.00	
		permeability		 		
Tracy	15	 Very limited:		 Very limited:		
		· -	1.00	Slope	1.00	
	 	capacity Slope	0.96	Seepage	0.53	
	1	Restricted	0.46	! 		

Table 14a.--Sanitary Facilities--Continued

	Pct. of map	absorption fiel	ds	Sewage lagoons 	1
	unit 	'	Value	 Rating class and limiting features	Value
UhwA: Urban land	 50	 Not rated	 	 Not rated	
Martinsville	 40 	40 Somewhat limited:		 Somewhat limited: Seepage 	0.53
UhwB: Urban land	 50	 Not rated	 	 Not rated	
Martinsville	 40 	 Somewhat limited: Restricted permeability	 0.46 	 Somewhat limited: Seepage Slope	0.53
UhwC: Urban land	 50	 Not rated	 	 Not rated	
Martinsville	 40 	 Somewhat limited: Restricted permeability	 0.46	 Very limited: Slope Seepage	 1.00 0.53
UkaA: Urban land	 50	 Not rated	 	 Not rated	
Maumee	 40 	 Very limited: Depth to saturated zone Filtering capacity Ponding	 1.00 1.00 1.00	 Very limited: Seepage Depth to saturated zone Ponding	 1.00 1.00 1.00
UkeA: Urban land	 50	 Not rated	 	 Not rated	<u> </u>
Milford	 40 	 Very limited: Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00
UkxA: Urban land	 50	 Not rated	 	 Not rated	
Oshtemo	 40 	 Very limited: Filtering capacity	 1.00 	 Very limited: Seepage 	 1.00
UkxB: Urban land	50	 Not rated		 Not rated	
Oshtemo	40 	 Very limited: Filtering capacity 	 1.00 	 Very limited: Seepage Slope 	 1.00 0.08
UkxC: Urban land	50	 Not rated		 Not rated	
Oshtemo	 40 	 Very limited: Filtering capacity 	 1.00 	 Very limited: Seepage Slope 	 1.00 1.00

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map	absorption fiel	ds	 Sewage lagoons 	3
	unit				
		Rating class and limiting features	Value	Rating class and limiting features	Value
UmfB: Urban land	 50 	 Not rated 	 	 Not rated 	
Riddles	 25 	 Very limited: Restricted permeability	1.00	Somewhat limited: Seepage Slope	0.53
Metea	 15 	 Very limited: Filtering capacity Restricted	 1.00 1.00	 Very limited: Seepage Slope	 1.00 0.08
		permeability		l	
UmfC: Urban land	 50	 Not rated 		 Not rated 	
Riddles	25 	Very limited: Restricted permeability	1.00	Very limited: Slope Seepage	1.00
Metea	15 	 Very limited: Filtering capacity Restricted permeability	 1.00 1.00	Very limited: Seepage Slope	 1.00 1.00
UmfD: Urban land	50	 Not rated		 Not rated	
Riddles	 25 	 Very limited: Restricted permeability Slope	 1.00 0.96	 Very limited: Slope Seepage	 1.00 0.53
Metea	 15 	 Very limited: Filtering capacity Restricted permeability Slope	 1.00 1.00 0.96	 Very limited: Slope Seepage	 1.00 1.00
UmpA: Urban land	 50	 Not rated		 Not rated	
Schoolcraft	 40 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.50	 Very limited: Seepage 	 1.00
UmuA: Urban land	 50	 Not rated		 Not rated	
Southwest	 40 	 Very limited: Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 	 Very limited: Depth to saturated zone Ponding Seepage	 1.00 1.00 0.53

Table 14a.--Sanitary Facilities--Continued

and soil name	Pct. of map	absorption fiel	ds	 Sewage lagoons 	
	unit				
	 	Rating class and limiting features		Rating class and limiting features	Value
	ļ	!	<u> </u>		ļ.
UmwA: Urban land	 50 	 Not rated 		 Not rated 	
Tracy	 40 	Very limited: Filtering capacity Restricted permeability	 1.00 0.46	Somewhat limited: Seepage -	0.53
UmwB:	 	 	I	 	
Urban land	 50 	 Not rated 		 Not rated 	
Tracy	 40 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.46 	Slope	 0.53 0.08
UmwC:	İ	İ	İ		İ
Urban land	50	Not rated		Not rated	
Tracy	 40 	 Very limited: Filtering capacity Restricted permeability	 1.00 0.46	 Very limited: Slope Seepage 	 1.00 0.53
UmwD:	İ	İ	İ		İ
Urban land	50	Not rated		Not rated	
Tracy	 40 	 Very limited: Filtering capacity Slope Restricted permeability	 1.00 0.96 0.46	 Very limited: Slope Seepage 	 1.00 0.53
UmxA: Urban land	 50	 Not rated		 Not rated	<u> </u>
Troxel	 40 	 Somewhat limited: Restricted permeability	 0.46 	 Somewhat limited: Seepage 	 0.53
UnoA: Urban land	 50	 Not rated		 Not rated	
Whitaker	 40 	 Very limited: Depth to saturated zone Restricted permeability	 1.00 0.46	saturated zone	 1.00 1.00
UnqB: Urban land	 50	 Not rated		 Not rated	
Williamstown	25	 Very limited:		 Somewhat limited:	
	 	Depth to saturated zone Restricted	 1.00 1.00		0.53
	 	permeability		Slope 	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map	· -	ds	 Sewage lagoons 	ı
	unit	 		l I	
	dilite 	Rating class and limiting features	Value	Rating class and limiting features	Value
UnqB: Crosier	 15	 Very limited: Depth to	 1.00	 Somewhat limited: Slope	 0.08
	l I	saturated zone	1	Depth to	0.01
	 	Restricted permeability	1.00		
UntA: Urban land	 50 	 Not rated 		 Not rated 	
Wunabuna, drained	40	 Verv limited:	i	 Very limited:	i
-	i	Depth to	1.00		1.00
	İ	saturated zone	i	saturated zone	i
	i	Ponding	1.00	Seepage	1.00
	İ	Restricted	0.46	Ponding	1.00
		permeability	İ	Content of	1.00
	 	 		organic matter	
Usl: Udorthents, rubbish-	 100 	 Not rated 		 Not rated 	
W: Water	 100 	 Not rated 		 Not rated 	
WcnAI:	İ		i		i
Waterford	80	Very limited:	i	Very limited:	i
	İ	Flooding	1.00	Flooding	1.00
		Depth to	1.00	Seepage	1.00
		saturated zone		Depth to	1.00
	 	Filtering capacity 	1.00 	saturated zone	
WoaA:	İ	<u> </u>	i	<u> </u>	i
Williamstown	85	Very limited:		Somewhat limited:	
		Depth to	1.00	Seepage	0.53
		saturated zone		Depth to	0.25
	 	Restricted permeability	1.00 	saturated zone	
WoaB2:	 	 		 	
Williamstown	85	Very limited:		Somewhat limited:	
		Depth to	1.00	Seepage	0.53
		saturated zone		Depth to	0.25
		Restricted	1.00	saturated zone	
	 	permeability		Slope 	0.08
	i				
WoaC2:		i		Very limited:	
WoaC2: Williamstown	80		:		
	 80 	Depth to	1.00	Slope	1.00
	 80 	Depth to saturated zone	1.00	Slope Seepage	0.53
	 80 	Depth to	:	Slope Seepage	
	 80 	Depth to saturated zone Restricted	1.00	Slope Seepage Depth to	0.53
Williamstown	 	Depth to saturated zone Restricted permeability	1.00 1.00 	Slope Seepage Depth to	0.53
Williamstown	 	Depth to saturated zone Restricted permeability	1.00 1.00 	Slope Seepage Depth to saturated zone Somewhat limited:	0.53
Williamstown	 	Depth to saturated zone Restricted permeability Very limited: Depth to saturated zone	1.00 1.00 1.00	Slope Seepage Depth to saturated zone Somewhat limited: Seepage Depth to	0.53 0.25
Williamstown	 	Depth to saturated zone Restricted permeability	1.00 1.00 	Slope Seepage Depth to saturated zone Somewhat limited: Seepage	0.53 0.25 0.53

Table 14a.--Sanitary Facilities--Continued

Map symbol	Pct.	Septic tank	Sewage lagoons		
and soil name	of		ds	i	
	map	i -	İ		
	unit	İ		İ	
	İ	Rating class and	Value	Rating class and	Value
		limiting features		limiting features	
WobB:	 	 		 	
Crosier	30	 Very limited:		 Somewhat limited:	
	i	Depth to	1.00	Slope	0.08
	i	saturated zone	i	Depth to	0.01
	i	Restricted	1.00	saturated zone	i
	İ	permeability	İ		İ
WrxAN:	 	 		 	
Wunabuna, drained	85	Very limited:	i	Very limited:	i
	i	Depth to	1.00	Depth to	1.00
	i	saturated zone	i	saturated zone	i
	i	Ponding	1.00	Seepage	1.00
	i	Restricted	0.46	Ponding	1.00
	i	permeability		Content of	1.00
				organic matter	
WtbA:	 	 		 	
Whitaker	75	Very limited:	i	Very limited:	i
	İ	Depth to	1.00	Depth to	1.00
	i	saturated zone	i	saturated zone	i
	i	Restricted	0.46	Seepage	1.00
	į	permeability	į		į
WujB:	 	 		 	
Williamstown	45	Very limited:	İ	Somewhat limited:	ĺ
	İ	Depth to	1.00	Seepage	0.53
	i	saturated zone	i	Depth to	0.25
	i	Restricted	1.00	saturated zone	i
	į	permeability	į	Slope	0.08
Moon	40	 Very limited:		 Very limited:	
	ĺ	Depth to	1.00	Seepage	1.00
	İ	saturated zone	i	Depth to	0.56
	İ	Restricted	1.00	saturated zone	i
	i	permeability	i	Slope	0.08
	i	1	i	1	1

Table 14b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	landfill		Area sanitary	•	Daily cover fo	or
	 	 Rating class and limiting features	Value	Rating class and limiting features	Value	 Rating class and limiting features	Value
AahAK: Abscota	80	 Very limited:	l I	 Very limited:	l	 Very limited:	l
and the second		Flooding	1.00	Flooding	1.00	Too sandy	1.00
	i	Depth to	1.00	Depth to	1.00	Seepage	1.00
	i	saturated zone	i	saturated zone	i	Depth to	0.11
	ĺ	Seepage	1.00	Seepage	1.00	saturated zone	ĺ
		Too sandy	1.00			!	
AatAN:		 				 	
Ackerman, drained	85	 Very limited:		 Very limited:		 Very limited:	
	İ	Depth to	1.00	Ponding	1.00	Ponding	1.00
	ĺ	saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
AbhAN:	l I	 		 		 	
Adrian, drained	75	 Very limited:	i	 Very limited:		 Very limited:	i
	İ	Depth to	1.00	Ponding	1.00	Ponding	1.00
	ĺ	saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
AbhAU:	l I	 		 		 	
Adrian, undrained	75	Very limited:	i	 Very limited:	i	 Very limited:	i
	İ	Depth to	1.00	Ponding	1.00	Ponding	1.00
	Ì	satuated zone	j	Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
ApuAN:	l I	 		 		 	
Antung, drained	75	 Very limited:	i	 Very limited:	i	 Very limited:	i
	į	Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
AxvA:	 	 				 	
Auten	82	Very limited:	i	Very limited:	i	 Very limited:	i
	į	Depth to	1.00		1.00		1.00
		saturated zone		saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
BaaA:	I I	 		 		 	1
Bainter	85	 Very limited:	i	 Very limited:	i	 Very limited:	
	İ	Seepage	1.00		1.00	: -	1.00
	!	!	1			!	
BaaB:							
Bainter	85		:	Very limited:		Very limited:	1.00
	I	Seepage	1.00	Seepage	1.00	Seepage	1 1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	ТУ	Area sanitary	•	 Daily cover fo landfill 	or
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
D G2							
BaaC2: Bainter	 85	 Very limited:		 Very limited:		 Very limited:	
24211002		Seepage	1.00	Seepage	1.00	Seepage	1.00
BbmA:		 		 		 	
Baugo	85	Very limited:	İ	Very limited:	İ	Very limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
	 	Too sandy 	1.00 	Seepage 	1.00	Too sandy Seepage	1.00
BmgA:							
Blount	85	 Very limited:		 Very limited:		 Very limited:	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Too clayey	0.50	 		Too clayey	0.50
BshA:	į		1		į		į
Brady	90	Very limited:		Very limited:		Very limited:	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.52
D3							
BsxA: Brems	 50	 Very limited:		 Very limited:		 Very limited:	
	i	Depth to	1.00	Depth to	1.00	Too sandy	1.00
	ĺ	saturated zone	ĺ	saturated zone		Seepage	1.00
		Seepage	1.00	Seepage	1.00	Depth to	0.47
	 	Too sandy	1.00	 		saturated zone	
Morocco	40	Very limited:	İ	Very limited:	i	Very limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone	11 00	saturated zone	1 00	saturated zone	11 00
	l I	Seepage Too sandy	1.00	Seepage	1.00	Too sandy Seepage	1.00
	İ						
BteA: Brems	 80	 Very limited:		 Very limited:		 Very limited:	
DICMD		Depth to	1.00	Depth to	1.00	Too sandy	1.00
	İ	saturated zone		saturated zone		Seepage	1.00
	İ	Seepage	1.00	Seepage	1.00	Depth to	0.47
		Too sandy	1.00	 		saturated zone	
BuuA:	İ						
Brookston	80	Very limited:		Very limited:	:	Very limited:	
		Depth to	1.00	Ponding	1.00	Ponding	1.00
	1	saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	sacuraced zone		Too clayey	0.50
CmbAI:		 		 		 	
Cohoctah	75	 Very limited:		 Very limited:		 Very limited:	
		Flooding	1.00	Flooding	1.00	Depth to	1.00
		Depth to	1.00	Depth to	1.00	saturated zone	
		saturated zone Seepage	1.00	saturated zone Seepage	1.00	Seepage	0.52
		Seepage					
CnbA:	 85	 Very limited:		 Very limited:		 Very limited:	
СОТОша	00	Very limited: Seepage	1.00	Very limited: Seepage	1.00	Very limited: Too sandy	1.00
	i	Too sandy	1.00			Seepage	1.00
	i	i -	i	İ	i	 I	i

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of	landfill	У	Area sanitary	•	Daily cover fo	r
	unit 	Rating class and limiting features	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
CnbB: Coloma	 85 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00	 Very limited: Too sandy Seepage	1.00
CnbC: Coloma	 85 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00	 Very limited: Too sandy Seepage	1.00
CnbD: Coloma	 85 	 Very limited: Seepage Too sandy Slope	 1.00 1.00 0.96	 Very limited: Seepage Slope	 1.00 0.96	 Very limited: Too sandy Seepage Slope	 1.00 1.00 0.96
CrrA: Coupee	 85 	 Very limited: Seepage Too clayey	 1.00 0.50	 Very limited: Seepage 	 1.00	 Somewhat limited: Too clayey 	0.50
CvdA: Crosier	 85 	 Very limited: Depth to saturated zone Too clayey	1.00	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone Too clayey	1.00
CvdB: Crosier	 80 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone Too clayey	1.00
Cwka: Crumstown	 80 	 Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Seepage Too sandy 	
CwkB: Crumstown	 80 	 Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage 	 1.00 1.00	 Very limited: Seepage Too sandy 	 1.00 1.00
DcrA: Del Rey	 85 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50
EchAN: Edwards, drained	 80 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	Depth to	 1.00 1.00 1.00	· -	 1.00 1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitar	У	Area sanitary		Daily cover fo	r
	İ L	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
EchAU:		 		 		 	
Edwards, undrained	75	 Very limited:		 Very limited:		 Very limited:	
	ĺ	Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone	1.00	saturated zone Carbonate content	
	l	 		Seepage 	1.00	carbonate content	1.00
EcrAN:	İ		i		İ		i
Edselton, drained	70	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
	1	Ponding Seepage	1.00	saturated zone Seepage	1.00	saturated zone Seepage	1.00
		Seepage	1	seepage 	1.00	seepage 	1.00
EcrAU:	İ		i		i		İ
Edselton, undrained-	70	Very limited:	İ	Very limited:	İ	Very limited:	İ
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
	l I	Seepage	1.00	Seepage	1.00	Seepage	1.00
EmeA:	İ		1				
Elston	85	Very limited:	j	Very limited:	İ	Very limited:	j
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00			Too sandy	0.50
GczA:	l I	 		 		 	
Gilford	75	 Very limited:	İ	 Very limited:		 Very limited:	
	ĺ	Depth to	1.00	Depth to	1.00	Depth to	1.00
	İ	saturated zone	j	saturated zone	İ	saturated zone	j
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00	 		Ponding	1.00
GdnA:	l	 		 		 	
Gilford	75	Very limited:	i	 Very limited:	i	 Very limited:	i
	İ	Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
	l I	Ponding	1.00	 		Ponding 	1.00
HfbAN:	İ		i		i		i
Henrietta, drained	80	Very limited:	j	Very limited:	İ	Very limited:	j
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Too sandy	1.00	Ponding	1.00	Ponding	1.00
	l I	Ponding	1.00	 		Too sandy	0.50
HfbAU:			i				
Henrietta, undrained	75	Very limited:	i	 Very limited:	İ	 Very limited:	İ
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
	I	Too sandy	1.00	 	 	Too sandy	0.50
HkkA:		 		 		 	
Hillsdale	80	Very limited:	i	 Not limited	i	Somewhat limited:	i
HILLDUGIC							

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary	•	Daily cover for landfill	
	 	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
HkkB: Hillsdale	 80 	 Very limited: Seepage	 1.00	 Not limited 	 	 Somewhat limited: Seepage	 0.22
HknC2: Hillsdale	 55 	 Very limited: Seepage		 Not limited 		 Somewhat limited: Seepage	
Oshtemo	 30 	 Very limited: Seepage Too sandy	 - 1.00 1.00		 1.00	 Very limited: Seepage Too sandy	 1.00 0.50
HknD2: Hillsdale	 55	 Very limited: Seepage	 1.00	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	 0.96
Oshtemo	 30	Slope	0.96			Stope Seepage Very limited:	0.22
	 	Seepage Too sandy Slope	1.00 1.00 0.96	Slope	1.00 0.96	Seepage Slope Too sandy	1.00 0.96 0.50
HkpC2: Hillsdale	 55 	 Very limited: Seepage		 Not limited 	 	 Somewhat limited: Seepage	0.22
Tracy	 30 	 Very limited: Seepage	1.00	 Not limited 		 Not limited 	
HkpD2: Hillsdale	 55 	 Very limited: Seepage Slope	 1.00 0.96		 0.96	 Somewhat limited: Slope Seepage	0.96
Tracy	 30 	 Very limited: Seepage Slope	 1.00 0.96		 0.96 	 Somewhat limited: Slope 	0.96
HtbAN: Houghton, drained	 75 	Very limited: Depth to saturated zone Ponding Content of organic matter Seepage	 1.00 1.00 1.00 1.00	Depth to saturated zone Seepage	 1.00 1.00 1.00		 1.00 1.00 1.00 0.16
HtbAU: Houghton, undrained-	 75 	Very limited: Depth to saturated zone Ponding Content of organic matter Seepage	 1.00 1.00 1.00	Depth to saturated zone Seepage	 1.00 1.00 1.00	Depth to saturated zone	 1.00 1.00 1.00 0.16

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	 Trench sanitar landfill 	У	Area sanitary landfill 		 Daily cover fo landfill 	r
		Rating class and	Value	Rating class and limiting features	Value	Rating class and	Value
JaaAK: Jamestown	 80 	 Very limited: Flooding Depth to saturated zone	 1.00 1.00	 Very limited: Flooding Depth to saturated zone Seepage	 1.00 1.00 1.00	Very limited: Depth to saturated zone	 1.00
MfaA: Martinsville	 70 	 Somewhat limited: Too clayey	 0.50	 Not limited 	 	 Somewhat limited: Too clayey	 0.50
MfaB2: Martinsville	 70 	 Somewhat limited: Too clayey	 0.50	 Not limited 	 	 Somewhat limited: Too clayey	 0.50
MfaC2: Martinsville	 80 	 Somewhat limited: Too clayey	 0.50	 Not limited 	 	 Somewhat limited: Too clayey	 0.50
MfrAN: Madaus, drained	 80 	 Very limited: Depth to saturated zone Ponding Seepage	 1.00 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00 	 Very limited: Ponding Depth to saturated zone Carbonate content	 1.00 1.00 1.00
MfrAU: Madaus, undrained	 75 	 Very limited: Depth to saturated zone Ponding Seepage	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00 	 Very limited: Ponding Depth to saturated zone Carbonate content	 1.00 1.00 1.00
MgcA: Maumee	 80 	 Very limited: Depth to saturated zone Seepage Too sandy Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Too sandy Seepage Ponding	 1.00 1.00 1.00
MgdAN: Martisco, drained	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00	 Very limited: Ponding Depth to saturated zone Carbonate content	 1.00 1.00 1.00
MhaA: Maumee	 80 	 Very limited: Depth to saturated zone Seepage Too sandy Ponding	 1.00 1.00 1.00	saturated zone	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Too sandy Seepage Ponding	 1.00 1.00 1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	ту	Area sanitary landfill		Daily cover fo	or
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MhbA: Maumee	 90 	 Very limited: Depth to saturated zone Ponding	1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
	 	Seepage Too sandy 	1.00	Seepage 	1.00	Too sandy Seepage	1.00
MmbC2: Miami	 80 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone	 1.00 	 Somewhat limited: Too clayey Depth to saturated zone	 0.50 0.47
MmdC3: Miami	 80 	 Somewhat limited: Depth to saturated zone Too clayey	 0.86 0.50	 Somewhat limited: Depth to saturated zone	 0.86 	 Somewhat limited: Too clayey Depth to saturated zone	 0.50 0.47
MmdD3: Miami	 80 	 Somewhat limited: Slope Depth to saturated zone Too clayey	 0.96 0.86 	 Somewhat limited: Slope Depth to saturated zone	 0.96 0.86	 Somewhat limited: Slope Too clayey Depth to saturated zone	 0.96 0.50 0.47
MouA: Milford	 85 	 Very limited: Depth to saturated zone Too clayey Ponding	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Too clayey Hard to compact Ponding	 1.00 1.00 1.00
MsaA: Mishawaka	 95 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00	 Very limited: Too sandy Seepage	 1.00 1.00
MtsB2: Morley	 75 	Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone	 1.00 	 Somewhat limited: Depth to saturated zone Too clayey	 0.86 0.50
MtsC2: Morley	 80 	 Very limited: Depth to saturated zone Too clayey Slope	 1.00 0.50 0.04	 Very limited: Depth to saturated zone Slope	 1.00 0.04	 Somewhat limited: Depth to saturated zone Too clayey Slope	 0.86 0.50 0.04
MubD3: Morley	 80 	 Very limited: Slope Depth to saturated zone Too clayey	 1.00 1.00 0.50	 Very limited: Slope Depth to saturated zone	 1.00 1.00	 Very limited: Slope Depth to saturated zone Too clayey	 1.00 0.86 0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of	Trench sanitar	У	Area sanitary		Daily cover fo	r
	map	İ		İ		İ	
	unit				1 -		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
	[Ţ.	!	ļ	[ļ.
MvhAN: Moston, drained	80	 Very limited:		 Very limited:	1	 Very limited:	1
Moscon, drained	00	Depth to	1.00	Ponding	1.00	Ponding	1.00
	i	saturated zone	i	Depth to	1.00	Depth to	1.00
	ĺ	Ponding	1.00	saturated zone		saturated zone	ĺ
		Seepage	1.00	Seepage	1.00	Seepage	1.00
	 	Content of organic matter	1.00	 		Hard to compact	1.00
MvhAU:		 		 		 	
Moston, undrained	75	 Very limited:	i	 Very limited:	İ	 Very limited:	İ
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of organic matter	1.00	 		Hard to compact	1.00
MvkA:	 	 		 	 	 	
Morocco	85	Very limited:	İ	Very limited:	į	Very limited:	į
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
	l I	Too sandy 	1.00	 	1	Seepage 	1.00
MwzAN:	į		į		į		į
Muskego, drained	75			Very limited:		Very limited:	
		Depth to	1.00	Ponding	1.00	Ponding	1.00
	l I	saturated zone Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	l I	Content of	1.00	Seepage	1.00	Hard to compact	1.00
		organic matter					
MwzAU:	 	 		 		 	
Muskego, undrained	70	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding Content of	1.00	saturated zone		saturated zone Hard to compact	
		organic matter		Seepage 	1.00	Hard to compact	1.00
OkrA:	 	 		 	 	 	
Oshtemo	80	Very limited:	İ	Very limited:	į	Very limited:	į
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00	 		Too sandy	0.50
OkrB:							
Oshtemo	80			Very limited:		Very limited:	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00 	 		Too sandy	0.50
OkrC2: Oshtemo	 80	 Very limited:		 Very limited:		 Very limited:	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00	- -		Too sandy	0.50
OkrD:		 		 		 	
Oshtemo	80		1	Very limited:		Very limited:	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00	Slope	0.96	Slope	0.96
	1	Slope	0.96	I	1	Too sandy	0.50

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	or
	 	Rating class and	Value	Rating class and	Value	Rating class and	Value
OlcA: Oshtemo	 80 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00	 Very limited: Seepage Too sandy	 1.00 0.50
OlcB: Oshtemo	 80 	 Very limited: Seepage Too sandy	 1.00	 Very limited: Seepage 	 1.00	 Very limited: Seepage Too sandy	 1.00 0.50
OlcC2: Oshtemo	 80 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage	 1.00	 Very limited: Seepage Too sandy	 1.00 0.50
OlcD: Oshtemo	 80 	 Very limited: Seepage Too sandy Slope	 1.00 1.00 0.96	Slope	 1.00 0.96	 Very limited: Seepage Slope Too sandy	 1.00 0.96 0.50
OmgA: Osolo	 85 	Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00	saturated zone	 1.00 1.00	 Very limited: Too sandy Seepage 	 1.00 1.00
PaaAN: Palms, drained	 80 	Very limited: Depth to saturated zone Ponding	 1.00 1.00	saturated zone	 1.00 1.00	Very limited: Depth to saturated zone Ponding	 1.00 1.00
PaaAU: Palms, undrained	 75 	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Ponding Depth to saturated zone Seepage	 1.00 1.00 	 Very limited: Ponding Depth to saturated zone	 1.00 1.00
Pmg: Pits, gravel	 100	 Not rated		 Not rated	 	 Not rated	
Px1A: Psammaquents	 85	 Not rated		 Not rated 	 	 Not rated 	
Pxo: Psamments	 85	 Not rated 		 Not rated 		 Not rated 	
QuiA: Quinn	 80 		 1.00 1.00	saturated zone	 1.00 	 Very limited: Depth to saturated zone	 1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	landfill	У	Area sanitary landfill	•	Daily cover fo	or
	 	Rating class and limiting features	Value	Rating class and	Value	Rating class and limiting features	Value
Out 3							
Quinn	 75 	 Very limited: Depth to	1.00	 Very limited: Depth to	1.00	 Very limited: Depth to	1.00
	 	saturated zone Seepage	1.00	saturated zone		saturated zone	
	İ		į		i		i
RenA: Rensselaer	 85	 Very limited:		 Very limited:		 Very limited:	
10110001401		Depth to	1.00	Ponding	1.00	Ponding	1.00
	İ	saturated zone	i	Depth to	1.00	Depth to	1.00
	İ	Ponding	1.00	saturated zone	į	saturated zone	į
		Too sandy	1.00			Too sandy	1.00
		 		 		Too clayey	0.50
ReyA:		 		 		 	
Rensselaer	75	Very limited:		Very limited:		Very limited:	
		Depth to	1.00	Ponding	1.00	Ponding	1.00
		saturated zone		Depth to	1.00	Depth to	1.00
		Ponding	1.00	saturated zone		saturated zone	
	 	Too sandy	1.00	 		Too sandy Too clayey	1.00
RopA:							
Riddles	50	Not limited		Not limited		Not limited	
Oshtemo	 35	 Very limited:		 Very limited:		 Very limited:	
	İ	Seepage	1.00	Seepage	1.00	Seepage	1.00
	ĺ	Too sandy	1.00			Too sandy	0.50
RopB:	l I	 		 		 	
Riddles	50	Not limited	i	 Not limited		Not limited	1
	ĺ		İ		i		i
Oshtemo	35			Very limited:	:	Very limited:	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
	 	Too sandy	1.00	 		Too sandy	0.50
RopC2:	İ						i
Riddles	50	Not limited		Not limited		Not limited	
Oshtemo	 35	 Very limited:		 Very limited:		 Very limited:	1
	ĺ	Seepage	1.00	Seepage	1.00	Seepage	1.00
	į	Too sandy	1.00		į	Too sandy	0.50
RopD2:	 	 	 	 		 	
Riddles	50	Somewhat limited:	i	Somewhat limited:	i		i
	İ	Slope	0.96	Slope	0.96	Slope	0.96
Oshtemo	 35	 Verv limited:		 Very limited:		 Very limited:	
OSITCEMO	33	Seepage	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00	Slope	0.96	Slope	0.96
	İ	Slope	0.96			Too sandy	0.50
Down.							
RoqB: Riddles	 55	 Not limited	1	Not limited	1	 Not limited	1
Metea	30	Not limited		Very limited:		Not limited	
				Seepage	1.00		

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map unit	Trench sanitar landfill	Trench sanitary landfill 			Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoqC2: Riddles	 55	Not limited	 	 Not limited	 	 Not limited	
Metea	 30 	Not limited	 	 Very limited: Seepage	 1.00	 Not limited 	
RoqD2: Riddles	 50 	Somewhat limited:	0.96	 Somewhat limited: Slope	 0.96	 Somewhat limited: Slope	0.96
Metea	 30 	Somewhat limited: Slope	 0.96 	 Very limited: Seepage Slope	 1.00 0.96	 Somewhat limited: Slope 	 0.96
SdzA:			i		i		i
Selfridge	50 	Very limited: Depth to saturated zone	 1.00 	Very limited: Depth to saturated zone Seepage	 1.00 1.00	Very limited: Depth to saturated zone	1.00
Crosier	 35 	Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone 	 1.00 	Very limited: Depth to saturated zone Too clayey	 1.00 0.50
SdzaB: Selfridge	 50 	Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Depth to saturated zone	 1.00
Brems	 35 	Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Too sandy Seepage Depth to saturated zone	 1.00 1.00 0.47
SesA:	l I		I I	 	l I	 	1
Schoolcraft	 80 	Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00 	 Very limited: Too sandy Seepage	 1.00 1.00
SnlA: Southwest	 75 	Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	 1.00	 Very limited: Depth to saturated zone	1.00
	 	Ponding Too clayey	1.00 0.50	Ponding 	1.00	Ponding Too clayey	1.00
TmpA: Tracy	 80 	Very limited: Seepage	1.00	 Not limited 	 	 Not limited 	
TmpB: Tracy	 80 	Very limited: Seepage	 1.00	 Not limited 	 	 Not limited 	
TmpC2: Tracy	 80 	Very limited: Seepage	 1.00	 Not limited 	 	 Not limited 	

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map	Trench sanitar	У	Area sanitary landfill		Daily cover fo	or
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
TmpD: Tracy	 80 	Seepage	 1.00 0.96		 0.96	 Somewhat limited: Slope	 0.96
TnwA: Troxel	 80		 1.00	 Not limited		 Not limited	
TxuA: Tyner	 85 	 Very limited: Seepage	i I		 1.00	 Very limited: Too sandy Seepage	 1.00 1.00
TxuB: Tyner	 85 	Seepage	 1.00 1.00	 Very limited: Seepage 	 1.00	 Very limited: Too sandy Seepage	 1.00
TxuC: Tyner	 85 	Seepage	 1.00 1.00		 1.00	 Very limited: Too sandy Seepage	 1.00 1.00
TxuD: Tyner	 85 	Seepage Too sandy	 1.00 1.00 0.96	Slope	 1.00 0.96	· -	 1.00 1.00 0.96
TxuF: Tyner	 80 	 Very limited: Slope Seepage	 1.00 1.00	 Very limited: Slope Seepage	 1.00 1.00	 Very limited: Slope Too sandy	 1.00 1.00
Uam: Udorthents, loamy	 100	- 	1.00 	 Not rated		Seepage Not rated	1.00
UdeA: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Bainter	40		1.00	 Very limited: Seepage	1.00	 Very limited: Seepage	1.00
UdeB: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Bainter	40 		1.00	 Very limited: Seepage 	1.00	 Very limited: Seepage 	1.00
UdeC: Urban land	 50	 Not rated 	 	 Not rated 		 Not rated 	
Bainter	40 		1.00	Very limited: Seepage	1.00	Very limited: Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct.	Trench sanitar	У	Area sanitary		Daily cover fo	or
	map unit	 		 		 	
	 	Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UdkA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Brady	 40 	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 0.52
_			!		!		
UdzA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Auten	 40 	 Very limited: Depth to saturated zone Seepage Too clayey	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50
UeaA:	l I	 	1	 	1	 	
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Crosier	 40 	 Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone 	 1.00 	Very limited: Depth to saturated zone Too clayey	 1.00 0.50
UeqA:	İ		İ	İ	İ		İ
Urban land	50 	Not rated 		Not rated 		Not rated 	
Gilford	40 	Very limited: Depth to saturated zone Seepage Too sandy Ponding	 1.00 1.00 1.00	Very limited: Depth to saturated zone Seepage Ponding	 1.00 1.00 1.00	Very limited: Depth to saturated zone Too sandy Seepage Ponding	 1.00 1.00 1.00
				[
Urban land	 50	 Not rated		 Not rated		 Not rated	
Brems	 25 	 Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage 	 1.00 1.00 	 Very limited: Too sandy Seepage Depth to saturated zone	 1.00 1.00 0.47
Morocco	15 	Very limited: Depth to saturated zone Seepage	 1.00 1.00	Very limited: Depth to saturated zone Seepage	 1.00 1.00	Very limited: Depth to saturated zone Too sandy	 1.00 1.00
		Too sandy	1.00			Seepage	1.00
UfbA:	l I	 	I I	 	 	 	1
Urban land	 50 	 Not rated 	 	 Not rated 		 Not rated 	
Brookston	40	 Very limited: Depth to saturated zone Ponding Too clayey	 1.00 1.00 0.50	 Very limited: Ponding Depth to saturated zone	 1.00 1.00	 Very limited: Ponding Depth to saturated zone Too clayey	 1.00 1.00 0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	landfill	У	Area sanitary landfill		Daily cover fo	or
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UfhA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00 	Very limited: Too sandy Seepage	1.00
UfhB: Urban land	50	 Not rated		 Not rated		 Not rated	
Coloma	 40 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 	 Very limited: Too sandy Seepage	 1.00 1.00
UfhC: Urban land	50	 Not rated	 	 Not rated	 	 Not rated	
Coloma	40 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00 	 Very limited: Too sandy Seepage	1.00
UfmA: Urban land	50	 Not rated		 Not rated	 	 Not rated	
Coupee	 40 	Seepage	 1.00 0.50	 Very limited: Seepage 	 1.00 	 Somewhat limited: Too clayey 	0.50
UfrA: Urban land	50	 Not rated		 Not rated	 	 Not rated	
Del Rey	40 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50	 Very limited: Depth to saturated zone	 1.00 	 Very limited: Depth to saturated zone Too clayey	1.00
UftA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Elston	 40 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	 1.00 	 Very limited: Seepage Too sandy	 1.00 0.50
UfzA: Urban land	50	 Not rated	 	 Not rated	 	 Not rated	
Mishawaka	 45 	Seepage	 1.00 1.00	 Very limited: Seepage 	 1.00 	 Very limited: Too sandy Seepage 	 1.00 1.00
UgaA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Morocco	 40 	Very limited: Depth to saturated zone Seepage Too sandy	 1.00 1.00 1.00		 1.00 1.00	Very limited: Depth to saturated zone Too sandy Seepage	 1.00 1.00 1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	or
	unit 	'		Rating class and limiting features		Rating class and limiting features	Value
UglA: Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Osolo	 40 	Depth to saturated zone Seepage	1.00	saturated zone Seepage	1.00	Very limited: Too sandy Seepage	 1.00 1.00
UgrA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Rensselaer	 40 	Depth to saturated zone Ponding	1.00	Depth to saturated zone	1.00	 Very limited: Ponding Depth to saturated zone Too sandy Too clayey	 1.00 1.00 1.00 0.50
UgsA: Urban land	 50	 Not rated	į Į	 Not rated	į Į	 Not rated	į Į
Riddles	 25 	 Not limited	 	 Not limited 	 	 Not limited 	
Oshtemo	 15 	Seepage			 1.00 	 Very limited: Seepage Too sandy	1.00
UgsB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Riddles	 25 	 Not limited 	 	 Not limited 	 	 Not limited	
Oshtemo	 15 	Seepage	 1.00 1.00		 1.00 	 Very limited: Seepage Too sandy	1.00
UgvA: Urban land	50	 Not rated		 Not rated	!	 Not rated	<u> </u>
Tyner	 40 	Seepage	 1.00 1.00		 	 Very limited: Too sandy Seepage	 1.00 1.00
UgvB: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tyner	 40 	Seepage	 1.00 1.00	 Very limited: Seepage 	 1.00 	 Very limited: Too sandy Seepage	 1.00 1.00
UgvC: Urban land	 50	 Not rated	!	 Not rated	!	 Not rated	<u> </u>
Tyner	 40 	Seepage	 1.00 1.00		 1.00 	 Very limited: Too sandy Seepage	 1.00 1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map	landfill	У	 Area sanitary landfill 		Daily cover for landfill		
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
UgvD: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Tyner	 40 		 1.00 1.00 0.96	 Very limited: Seepage Slope 	 1.00 0.96	 Too sandy Seepage Slope	 1.00 1.00 0.96	
UhmA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Hillsdale	 40 		 1.00	 Not limited 	 	 Somewhat limited: Seepage	0.22	
UhmB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Hillsdale	 40 		 1.00	 Not limited 	 	 Somewhat limited: Seepage	0.22	
UhoC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	 	
Hillsdale	 30 		1.00	 Not limited 		 Somewhat limited: Seepage	0.22	
Oshtemo	 15 	 Very limited: Seepage Too sandy	 1.00 1.00	 Very limited: Seepage 	1.00	 Very limited: Seepage Too sandy	 1.00 0.50	
UhoD:	 	 	 	 	1	 		
Urban land	į		 	 Not rated 	į	 Not rated 	 	
Hillsdale	30 		 1.00 0.96	Somewhat limited: Slope 	 0.96 	Somewhat limited: Slope Seepage	0.96	
Oshtemo	 15 	Seepage	 1.00 1.00 0.96	 Very limited: Seepage Slope 	 1.00 0.96	 Very limited: Seepage Slope Too sandy	 1.00 0.96 0.50	
UhpC:	 	 	 	 				
Urban land	İ	İ	i !	Not rated	<u> </u> 	Not rated		
Hillsdale	30 		 1.00 	Not limited 	 	Somewhat limited: Seepage 	0.22	
Tracy	15 15	<u>. </u>	1.00	Not limited	 	Not limited	 	
UhpD: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	 	
Hillsdale	30	Seepage	 1.00 0.96	 Somewhat limited: Slope	0.96	 Somewhat limited: Slope Seepage	0.96	
Tracy	 15 	Seepage	 1.00 0.96	 Somewhat limited: Slope 	 0.96 	 Somewhat limited: Slope 	 0.96	

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map		У	Area sanitary landfill 		Daily cover for landfill	or
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Valu
UhwA: Urban land		 Not rated	 	 Not rated	 	 Not rated	
	İ	İ	İ	İ	į	İ	
Martinsville	40	!	 0.50	Not limited 	 	Somewhat limited: Too clayey	0.50
UhwB:		 	İ	 	 	 	
Urban land	50	 Not rated	 	 Not rated		 Not rated	į
Martinsville	40	'	0.50	 Not limited 		Somewhat limited: Too clayey	0.50
UhwC:		 		 		 	
Urban land	50	 Not rated		 Not rated		 Not rated	
Martinsville	40		 0.50	 Not limited 	 	 Somewhat limited: Too clayey	0.50
	ĺ	ĺ		ĺ	ĺ	ĺ	İ
UkaA:							
Urban land	50	Not rated	1	Not rated		Not rated	
Maumee	40	 Verv limited:	 	 Very limited:	 	 Very limited:	
			1.00		1.00		1.00
	į	saturated zone	į	saturated zone	į	saturated zone	į
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Ponding	1.00	Seepage	1.00
		Ponding	1.00	 		Ponding	1.00
UkeA:	İ						
Urban land	50	Not rated		Not rated		Not rated	
Milford	40	 Very limited:	i	 Very limited:	İ	 Very limited:	i
	į	Depth to	1.00	Depth to	1.00	Depth to	1.00
	ĺ	saturated zone	Ì	saturated zone		saturated zone	İ
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Ponding	1.00			Hard to compact	1.00
		 		 		Ponding	1.00
UkxA:			į				
Urban land	50	Not rated	 	Not rated	 	Not rated	1
Oshtemo	40	 Verv limited:	İ	 Very limited:	İ	 Very limited:	i
			1.00		1.00		1.00
	į	Too sandy	1.00		į	Too sandy	0.50
UkxB:		 	 	 	 	 	
Urban land	50	Not rated		 Not rated		 Not rated	
Oshtemo	40	 Very limited:		 Very limited:		 Very limited:	
			1.00	Seepage	1.00		1.00
		Too sandy	1.00	 		Too sandy	0.50
UkxC:	İ		İ				i
UKAC:	I E0	Not rated		Not rated		Not rated	!
Urban land	30	İ	1				
	İ	 Very limited:		 Very limited:		 Very limited:	
Urban land	İ		 1.00		 1.00		 1.00

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map	landfill	У	Area sanitary		Daily cover fo	r
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UmfB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	25	 Not limited		 Not limited		 Not limited	
Metea	 15 	 Not limited 	 	 Very limited: Seepage	 1.00	 Not limited 	
UmfC:	l I	 	 	 	 	 	
Urban land	50	 Not rated		 Not rated		 Not rated	
Riddles	25	 Not limited		 Not limited		 Not limited	
Metea	 15 	 Not limited 		 Very limited: Seepage	1.00	 Not limited 	
UmfD:	l I	 	l I		 	 	
Urban land	 50 	 Not rated 		 Not rated 		 Not rated 	
Riddles	 25 	!	0.96	Somewhat limited: Slope	0.96	Somewhat limited: Slope	0.96
Metea	 15 	!	 0.96 	 Very limited: Seepage Slope	 1.00 0.96	 Somewhat limited: Slope 	0.96
UmpA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Schoolcraft	 40 	Seepage	 1.00 1.00	 Very limited: Seepage	 1.00 	 Very limited: Too sandy Seepage	 1.00 1.00
UmuA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Southwest	 40 	Depth to saturated zone Ponding	 1.00 1.00 0.50	 Very limited: Depth to saturated zone Ponding	 1.00 1.00	 Very limited: Depth to saturated zone Ponding Too clayey	 1.00 1.00 0.50
	İ	İ	İ	İ	İ	İ	İ
UmwA: Urban land	 50	 Not rated		 Not rated		 Not rated	
Tracy	 40 		1 1.00	 Not limited 	 	 Not limited 	
UmwB:	 	 		 		 	
Urban land	50	Not rated	j I	Not rated	i I	Not rated	į į
Tracy	40		1.00	Not limited	 	Not limited	
UmwC:	 	 		[
Urban land	50 	Not rated	 	 Not rated 	 	 Not rated 	İ
Tracy	40		1.00	Not limited	 	Not limited -	

Table 14b.--Sanitary Facilities--Continued

and soil name	Pct. of map		У	Area sanitary		Daily cover fo	r
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UmwD: Urban land	 50	 Not rated	 	 Not rated 	 	 Not rated	
Tracy	 40 		 1.00 0.96	 Somewhat limited: Slope 	 0.96 	Somewhat limited: Slope 	0.96
UmxA: Urban land	 50	 Not rated	 	 Not rated		 Not rated	
Troxel	 40 		 1.00	 Not limited 	 	 Not limited 	
UnoA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Whitaker	 40 	Depth to saturated zone	 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 1.00	 Very limited: Depth to saturated zone Too clayey Seepage	 1.00 0.50 0.22
UnqB: Urban land	50	 Not rated		 Not rated		 Not rated	
Williamstown	 25 	Depth to saturated zone	 - 1.00 0.50	Very limited: Depth to saturated zone	 1.00 	Somewhat limited: Depth to saturated zone Too clayey	 0.86 0.50
Crosier	 15 	Depth to saturated zone	 1.00 0.50	 Very limited: Depth to saturated zone 	 1.00 	 Very limited: Depth to saturated zone Too clayey	 1.00 0.50
UntA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Wunabuna, drained	 40 	Depth to saturated zone Content of organic matter Seepage	 1.00 1.00 1.00 1.00	saturated zone	 1.00 1.00 1.00	saturated zone	 1.00 1.00 1.00 0.16
Usl: Udorthents, rubbish-	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
W: Water	 100 	 Not rated 	 	 Not rated 	 	 Not rated 	
WcnAI: Waterford	 80 	Flooding	 1.00 1.00 1.00	 Very limited: Flooding Depth to saturated zone Seepage	 1.00 1.00 1.00	 Very limited: Depth to saturated zone Seepage	 1.00 0.52

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name			У	Area sanitary landfill	•	Daily cover for landfill	
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WoaA:	 	 		 		 	
Williamstown	85	Very limited:	İ	Very limited:		Somewhat limited:	į
		Depth to	1.00		1.00	Depth to	0.86
		saturated zone Too clayey	0.50	saturated zone		saturated zone Too clayey	0.50
WoaB2:	 	 		 		 	
Williamstown	85	 Very limited:		 Very limited:		Somewhat limited:	i
		Depth to	1.00	Depth to	1.00	Depth to	0.86
		saturated zone	!	saturated zone		saturated zone	
	 	Too clayey 	0.50	 		Too clayey 	0.50
WoaC2:	į		į		į		į
Williamstown	80	Very limited: Depth to	1.00	Very limited: Depth to	1.00	Somewhat limited: Depth to	0.86
	l I	saturated zone	1	saturated zone	1	saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
WobB:	 		 	 		 	
Williamstown	50	Very limited:	İ	Very limited:	İ	Somewhat limited:	İ
		Depth to	1.00	Depth to	1.00	Depth to	0.86
		saturated zone		saturated zone		saturated zone	
	 	Too clayey 	0.50	 		Too clayey 	0.50
Crosier	30	Very limited:	ĺ	Very limited:		Very limited:	Ì
		Depth to	1.00	Depth to	1.00	Depth to	1.00
	 	saturated zone Too clayey	0.50	saturated zone		saturated zone Too clayey	0.50
	İ						
WrxAN:		 					
Wunabuna, drained	85	Very limited: Depth to	1.00	Very limited: Depth to	1.00	Very limited: Depth to	1.00
	 	saturated zone	1	saturated zone	1.00	saturated zone	
	İ	Content of	1.00	Seepage	1.00	Content of	1.00
		organic matter		Ponding	1.00	organic matter	
		Seepage	1.00			Ponding	1.00
	 	Ponding 	1.00	 		Seepage 	0.16
WtbA:			İ			 	
Whitaker	/5 	Very limited: Depth to	1.00	Very limited: Depth to	1.00	Very limited: Depth to	1.00
	 	saturated zone	1	saturated zone	1.00	saturated zone	
	i	Seepage	1.00		1.00	Too clayey	0.50
	į		į		į	Seepage	0.22
WujB:	[
Williamstown	45			Very limited:	'	Somewhat limited:	
		Depth to	1.00	: -	1.00		0.86
	 	saturated zone Too clayey	0.50	saturated zone		saturated zone Too clayey	0.50
Waan		 		 		 Gemesthet 34=45=3	
Moon	40 	Very limited: Depth to	1.00	Very limited: Depth to	1.00	Somewhat limited: Depth to	0.68
	1		1		1	· -	1
	1	saturated zone	1	saturated zone	1	saturated zone	

Table 15a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

	Pct.	'	of	Potential source	e of
	of			sand	
	map	1			
	unit	'	1		1
	l	Rating class	Value	Rating class	Value
AahAK:		 		 	
Abscota	80	Poor:	İ	Fair:	j
		Thickest layer	0.00	Thickest layer	0.15
		Bottom layer	0.00	Bottom layer	0.50
atAN:	 	 		 	
Ackerman, drained	85	Poor:		Fair:	
		Bottom layer	0.00	Thickest layer	0.00
	 	Thickest layer	0.00	Bottom layer	0.10
AbhAN:					İ
Adrian, drained	75	Poor:		Fair:	
		Thickest layer		Thickest layer	0.00
	 	Bottom layer	0.00	Bottom layer	0.11
AbhAU:	! 		į		į
Adrian, undrained	75	1		Fair:	
				Thickest layer	0.00
	 	Bottom layer 	0.00	Bottom layer	0.11
puAN:	į 	-	į		į
Antung, drained	75	'		Fair:	
				Thickest layer	0.00
	 	Bottom layer 		Bottom layer 	0.43
xvA:					
Auten	82	Poor: Thickest layer	0.00	Fair: Thickest layer	0.00
	 	Bottom layer		Bottom layer	0.31
		Bottom Tayer		Boccom Tayer	
BaaA: Bainter		 Taim:		 Fair:	
Bainter	65	Thickest layer	0.00	•	0.09
		Bottom layer		Bottom layer	0.84
BaaB:		 			
Bainter	 85	 Fair:		 Fair:	
		Thickest layer	0.00		0.09
	į	Bottom layer		Bottom layer	0.84
BaaC2:	 			 	
Bainter	85	Fair:	İ	Fair:	j
		Thickest layer	0.00	Thickest layer	0.09
	 	Bottom layer	0.69	Bottom layer	0.84
BbmA:		 			
Baugo	85	Poor:		Fair:	
		Bottom layer		Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.22

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct.	•	e of	Potential source	e of
	map				
	unit	'		<u> </u>	
	<u> </u>	Rating class	Value	Rating class	Value
BmgA:	 	 		 	l
Blount	85	Poor:		Poor:	i
	į	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BshA:					
Brady	90	 Fair:		 Fair:	İ
•		Thickest layer	0.00	•	0.07
	İ	Bottom layer	0.69	Bottom layer	0.76
D 3					
BsxA: Brems	 50	 Poor:		 Fair:	l
		Bottom layer	'	Bottom layer	0.17
	İ	Thickest layer	0.00	Thickest layer	0.17
V		 Parasa			
Morocco	40	Poor: Bottom layer	'	Fair: Thickest layer	0.43
		Thickest layer	'	Bottom layer	0.43
				Boccom rayer	
BteA:		[!	
Brems	80	Poor:	'	Fair:	
		Bottom layer		Bottom layer	0.17
	 	Thickest layer	0.00	Thickest layer	0.17
BuuA:	İ	į	i	İ	i
Brookston	80	Poor:		Poor:	ļ
		Bottom layer		Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
CmbAI:	İ	İ	į	İ	į
Cohoctah	75	Poor:	'	Fair:	
		Thickest layer	0.00	:	0.00
	 	Bottom layer	0.00	Bottom layer	0.50
CnbA:	į	İ	i	İ	i
Coloma	85	Poor:	'	Fair:	ļ
		Bottom layer		Thickest layer	0.58
	 	Thickest layer	0.00	Bottom layer	0.84
CnbB:	İ	İ	i	İ	i
Coloma	85	Poor:		Fair:	
		Bottom layer	0.00		0.58
	 	Thickest layer	0.00	Bottom layer	0.84
CnbC:					
Coloma	85	Poor:		Fair:	
		Bottom layer	0.00		0.58
	 	Thickest layer	0.00	Bottom layer	0.84
CnbD:					
Coloma	85	Poor:		Fair:	
		Bottom layer	0.00	:	0.58
	 	Thickest layer	0.00	Bottom layer	0.84
CrrA:	İ				
Coupee	85	•		Fair:	
		Thickest layer	0.00	:	0.00
		Bottom layer	0.66	Bottom layer	0.50

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	gravel	e of	Potential source	e of
	unit 	Rating class	Value	Rating class	Value
	İ	İ	İ	İ	İ
CvdA: Crosier	 85 	 Poor: Bottom layer Thickest layer	'	 Poor: Bottom layer Thickest layer	 0.00 0.00
CvdB:					
Crosier	80 	Poor: Bottom layer Thickest layer	0.00	Poor: Bottom layer Thickest layer	0.00
CwkA: Crumstown	 80 	 Poor: Bottom layer	'	 Fair: Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.19
CwkB: Crumstown	 80 	 Poor: Bottom layer Thickest layer	0.00	 Fair: Bottom layer Thickest layer	 0.10 0.19
DcrA: Del Rey	 85 	 Poor: Bottom layer Thickest layer	'	 Poor: Bottom layer Thickest layer	 0.00 0.00
EchAN: Edwards, drained	 80 	 Poor: Bottom layer Thickest layer	0.00	 Poor: Bottom layer Thickest layer	0.00
EchAU: Edwards, undrained	 75 	 Poor: Bottom layer		 Poor: Bottom layer	0.00
EcrAN:	 	Thickest layer 	į Į	Thickest layer	0.00
Edselton, drained	70 	•	0.00	Fair: Thickest layer Bottom layer	0.00
EcrAU: Edselton, undrained-	 70 		0.00		0.00
EmeA: Elston	 85 	 Fair: Thickest layer Bottom layer	 0.00 0.15		 0.12 0.76
GczA: Gilford	 75 	 Poor: Thickest layer Bottom layer	 0.00 0.00	 Fair: Thickest layer Bottom layer	 0.08 0.43
GdnA: Gilford	 75	 Poor:	 	 Fair:	
	 	Thickest layer Bottom layer 	0.00 0.00 	Thickest layer Bottom layer 	0.08

Table 15a.--Construction Materials--Continued

and soil name	of	· -	e of	Potential sourc	e of
	map unit			 	
		Rating class	Value	Rating class	Value
Hfban:		 			
Henrietta, drained	l l 80	Poor:		 Fair:	
	İ	'	'	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
HfbAU:	 			 	
Henrietta, undrained	75	Poor:	ĺ	Fair:	İ
		Bottom layer		Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
HkkA:		 			İ
Hillsdale	80	Poor:		Fair:	
		Bottom layer		Bottom layer	0.01
	 	Thickest layer 	0.00	Thickest layer	0.07
HkkB:			į		į
Hillsdale	80	'	'	Fair:	
			'	Bottom layer	0.01
	 	Thickest layer 	0.00	Thickest layer	0.07
HknC2:					
Hillsdale	55	Poor:	'	Fair:	
	 		0.00	Bottom layer Thickest layer	0.01
Only					
Oshtemo	30	Fair: Thickest layer		Fair: Thickest layer	0.11
		Bottom layer		Bottom layer	0.58
HknD2:		 			
Hillsdale	l 55	Poor:		 Fair:	
	55	Bottom layer	'	Bottom layer	0.01
			'	Thickest layer	0.07
Oshtemo	 30	 Fair:		 Fair:	l
	i	Thickest layer	'	Thickest layer	0.11
		Bottom layer	0.68	Bottom layer	0.58
HkpC2:	 	 		 	
Hillsdale	55	Poor:	ĺ	Fair:	İ
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.07
Tracy	30	 Fair:		 Fair:	
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.23	Bottom layer	0.43
HkpD2:					
Hillsdale	55		'	Fair:	-
	 	Bottom layer Thickest layer	0.00	Bottom layer Thickest layer	0.01
	ĺ	İ			
Tracy	30	'	'	Fair:	
		Thickest layer	0.00		0.04
		Bottom layer	0.23	Bottom layer	0.43

Table 15a.--Construction Materials--Continued

and soil name	Pct. of map	gravel	of	Potential source	of
	unit	·	1		1
	<u> </u>	Rating class	Value 	Rating class	Value
HtbAN:	į	į	į	į	į
Houghton, drained	75 	•	 0.00	Poor: Bottom layer	0.00
			0.00		0.00
HtbAU:		 	 	 	
Houghton, undrained-	75	•		Poor:	
	 	-	0.00	:	0.00
JaaAK:	 	 	 	 	
Jamestown	80	Poor:	i	Poor:	İ
		Bottom layer	0.00	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
MfaA:		l Parass		 	į
Martinsville	70 	•	0.00	Fair: Thickest layer	0.00
				· -	0.03
MfaB2:	 	 	 	 	
Martinsville	70	Poor:		Fair:	
			0.00		0.00
	 	Thickest layer 	0.00 	Bottom layer 	0.03
MfaC2: Martinsville	 80	 Poor:	 	 Fair:	
		•		!	0.00
	 	Thickest layer	0.00	Bottom layer	0.03
MfrAN:					
Madaus, drained	80	•	'	Fair:	
		-	0.00	· -	0.00
MfrAU:	 	 	 	 	
Madaus, undrained	75	Poor:	ĺ	Fair:	
		-	0.00		0.00
	 	Thickest layer	0.00	Bottom layer 	0.97
MgcA:	80	 Poor:		 Fair:	
Madifice	00	_			0.58
					0.97
MgdAN:					
Martisco, drained	75	•		Poor:	
	 	-	'		0.00
MhaA:	 	 	 	 	
Maumee	80	Poor:	İ	Fair:	İ
		Bottom layer	0.00	Thickest layer	0.26
		Thickest layer	0.00	Bottom layer	0.76
Martisco, drained MhaA:	 	 Poor: Bottom layer Thickest layer - Poor: Bottom layer	0.00	 Poor: Bottom layer Thickest layer Fair: Thickest layer	

Table 15a.--Construction Materials--Continued

	Pct. of	•	e of	Potential sourc	e of
	map				
	unit 	 Rating class	Value	Rating class	Value
	l	l	İ		İ
MhbA:					
Maumee	90 	Poor: Bottom layer	0.00	Fair: Thickest layer	0.26
			:	Bottom layer	0.76
MmbC2:	 	 		 	
Miami	80	Poor:	i	Poor:	i
		· -	:	Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
MmdC3:					
Miami	80	Poor:		Poor:	
	l I	· -	:	Bottom layer Thickest layer	0.00
		Inickest layer		Inickest layer	
MmdD3: Miami	80	Poor:		 Poor:	
MIGHT	00	1	'	Bottom layer	0.00
	İ			Thickest layer	0.00
MouA:				 	
Milford	85	 Poor:		 Poor:	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MsaA:				 	
Mishawaka	95	Poor:		Good	
	 	Bottom layer Thickest layer	0.00	Thickest layer	0.76
MtsB2: Morley	 75	Poor:		Poor:	
		!		Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MtsC2:		 		 	
Morley	80	Poor:	'	Poor:	
		Bottom layer	:	Bottom layer	0.00
		Thickest layer 		Thickest layer 	0.00
MubD3: Morley		Poor:		 Poor:	
MOITEY	80	Bottom layer	0.00	'	0.00
		Thickest layer	0.00		0.00
MvhAN:	 			 	
Moston, drained	80	Poor:	i	 Fair:	i
		Thickest layer	0.00	Thickest layer	0.00
	 	Bottom layer	0.00	Bottom layer	0.43
MvhAU:					
Moston, undrained	75	:		Fair:	
	 	Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.00
_	İ				
MvkA:					ļ
Morocco	8.5	Poor:		Fair:	
Morocco	85 	Poor: Bottom layer	0.00	Fair: Thickest layer	0.43

Table 15a.--Construction Materials--Continued

	Pct.	f gravel		Potential source of sand		
	map unit			 		
		Rating class	Value	Rating class	Value	
					i	
MwzAN:						
Muskego, drained	75			Poor:		
		Bottom layer		Bottom layer	0.00	
	 	Thickest layer	0.00	Thickest layer	0.00	
MwzAU:	l I	 	l l	 	I	
Muskego, undrained	70	Poor:	İ	Poor:	i	
•	İ		0.00	Bottom layer	0.00	
		Thickest layer	0.00	Thickest layer	0.00	
OkrA:						
Oshtemo	80	Fair:		Fair:		
		·	0.00	·	0.11	
	l I	Bottom layer	0.68	Bottom layer	0.58	
OkrB:	l I	 		 	l	
Oshtemo	80	 Fair:	İ	 Fair:	i	
	İ	Thickest layer	0.00	Thickest layer	0.11	
		Bottom layer	0.68	Bottom layer	0.58	
OkrC2:						
Oshtemo	80	Fair:		Fair:		
			0.00	Thickest layer	0.11	
		Bottom layer	0.68	Bottom layer	0.58	
OkrD:	l I	 	l l	 	I	
Oshtemo	80	 Fair:	İ	 Fair:	i	
			0.00		0.11	
	İ	Bottom layer	0.68	Bottom layer	0.58	
OlcA:						
Oshtemo	80	Fair:		Fair:		
	 	Thickest layer Bottom layer	0.00	·	0.11	
	l I	Bottom Tayer	0.00	Bottom Tayer	0.56	
OlcB:	İ					
Oshtemo	80	Fair:	į	Fair:	j	
		Thickest layer	0.00	Thickest layer	0.11	
		Bottom layer	0.68	Bottom layer	0.58	
01cC2:						
Oshtemo	80	Fair:		Fair:		
	l I	Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.11	
	İ					
OlcD:	İ		i		i	
Oshtemo	80	Fair:		Fair:		
		Thickest layer	0.00	Thickest layer	0.11	
		Bottom layer	0.68	Bottom layer	0.58	
03						
OmgA:	 o=	 Boome		Paire		
Osolo	85 	Poor: Bottom layer	0.00	Fair: Bottom layer	0.10	
	i	Thickest layer	0.00	Thickest layer	0.11	
	i					
PaaAN:	İ		İ		į	
D-1 444	80	Poor:		Poor:		
Palms, drained						
raims, drained	į	Thickest layer Bottom layer	0.00	Bottom layer Thickest layer	0.00	

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	gravel	e of	Potential source sand	e of
	unit				
	<u>i </u>	Rating class	Value	Rating class	Value
PaaAU:	 	 		 	
Palms, undrained	75 75 	Poor: Thickest layer Bottom layer	0.00	Poor: Bottom layer Thickest layer	0.00
Pmg: Pits, gravel	 100	 Not rated 		 Not rated 	
PxlA: Psammaquents	 85 	 Not rated 		 Not rated 	
Pxo: Psamments	 85	 Not rated 	 	 Not rated	
QuiA:	İ				İ
Quinn	80	Poor: Thickest layer	0.00	Fair:	0.00
		Bottom layer	0.00	:	0.09
QujA:		 		 	
Quinn	75	Poor:		 Fair:	
	ļ	Thickest layer	0.00	:	0.00
	 	Bottom layer	0.00	Bottom layer 	0.09
RenA:	į		į		į
Rensselaer	85	Poor: Bottom layer	0.00	Poor: Bottom layer	0.00
	į	Thickest layer	0.00	:	0.00
ReyA:	 	 		 	
Rensselaer	75	Poor:	į	Poor:	į
	 	Bottom layer Thickest layer	0.00	:	0.00
	İ				
RopA: Riddles	50	Poor:		Poor:	
RIGGIES		Bottom layer	0.00	!	0.00
		Thickest layer	0.00	Thickest layer	0.00
Oshtemo	35	 Fair:		 Fair:	
		Thickest layer	0.00	Thickest layer	0.11
	 	Bottom layer	0.68	Bottom layer	0.58
RopB:	İ	İ	İ	İ	į
Riddles	50	Poor: Bottom layer	0.00	Poor: Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Oaktomo		 Fair:		 Padmi	
Oshtemo	35	Thickest layer	0.00	Fair: Thickest layer	0.11
	į	Bottom layer	0.68	Bottom layer	0.58
RopC2:		 		 	
Riddles	50	Poor:		Poor:	l
	 	Bottom layer Thickest layer	0.00		0.00
Oshtemo	35	Fair:		Fair:	
	 	Thickest layer Bottom layer	0.00		0.11
	i				

Table 15a.--Construction Materials--Continued

	Pct.	gravel	e of	Potential source	e of
	map				
	unit 	Rating class	Value	Rating class	Value
Dem D2 -					
RopD2: Riddles	 50	Poor:	l	 Poor:	l
		:		Bottom layer	0.00
	į	Thickest layer		Thickest layer	0.00
Oshtemo	 35	 Fair:		 Fair:	
	į	Thickest layer	0.00	Thickest layer	0.11
		Bottom layer	0.68	Bottom layer	0.58
RoqB:					
Riddles	55	Poor:		Poor:	
		Bottom layer		Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
Metea	30	Poor:	'	Fair:	į
		Bottom layer	'	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.13
RoqC2:					İ
Riddles	55	Poor: Bottom layer		Poor: Bottom layer	0.00
		Thickest layer		Thickest layer	0.00
Metea	30	Poor:		 Fair:	
Mecea	30	Bottom layer	'	Bottom layer	0.00
	į	Thickest layer		Thickest layer	0.13
RoqD2:	 	 		 	
Riddles	50	Poor:	j	Poor:	j
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Metea	30	Poor:	i	Fair:	i
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.13
SdzA:	į				į
Selfridge	50	•		Fair:	
	 	Bottom layer Thickest layer		Bottom layer Thickest layer	0.00
	i				
Crosier	35	•		Poor:	
		Bottom layer	0.00		0.00
		Thickest layer 	0.00	Thickest layer 	0.00
SdzaB:		 Do			
Selfridge	30	Bottom layer	0.00	Fair: Bottom layer	0.00
	İ	Thickest layer	0.00	Thickest layer	0.09
Brems	35	Poor:		 Fair:	
		Bottom layer	0.00	'	0.17
	į	Thickest layer	0.00	Thickest layer	0.17
SesA:	 	 		 	
Schoolcraft	80	Fair:	j	Fair:	į
		Thickest layer	0.00	Thickest layer	0.67
		Bottom layer	0.69	Bottom layer	0.90

Table 15a.--Construction Materials--Continued

and soil name	of map	ap		Potential source of sand	
	unit 	 Rating class	Value	Rating class	Value
SnlA:	 	 		 	
Southwest	75	Poor: Bottom layer	0.00	Poor: Bottom layer	0.00
	 	Thickest layer 	0.00	Thickest layer 	0.00
TmpA: Tracy	 80	 Fair:		 Fair:	
		Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.04
TmpB:		 		 	
Tracy	80 	Fair: Thickest layer	0.00	Fair: Thickest layer	0.04
	 	Bottom layer	0.23	Bottom layer	0.43
TmpC2:	 80	 Fair:		 Fair:	į
•	ĺ	Thickest layer	'	Thickest layer	0.04
	 	Bottom layer	0.23	Bottom layer	0.43
TmpD: Tracy	 80	 Fair:		 Fair:	
		Thickest layer	0.00	Thickest layer	0.04
	 	Bottom layer	0.23	Bottom layer	0.43
TnwA: Troxel	 80	 Poor:		 Fair:	
		Thickest layer	0.00	:	0.00
	 	Bottom layer		Bottom layer	0.03
TxuA: Tyner	 85	 Poor:		 Fair:	
		Bottom layer	0.00	:	0.67
		Thickest layer	0.00	Bottom layer	0.99
TxuB: Tyner	 85	 Poor:		 Fair:	
		Bottom layer Thickest layer	'	Thickest layer Bottom layer	0.67
		Inickest layer		Bottom Tayer	0.99
TxuC: Tyner	 85	 Poor:		 Fair:	
	 	Bottom layer Thickest layer		Thickest layer Bottom layer	0.67 0.99
TxuD:	 	 		 	
Tyner	85	Poor:	'	Fair:	
	 	Bottom layer Thickest layer	0.00	Thickest layer Bottom layer	0.67
TxuF:	 	 			
Tyner	80	Poor: Bottom layer		Fair: Thickest layer	0 67
	 	Bottom layer Thickest layer	0.00		0.67
	I	1	1		

Table 15a.--Construction Materials--Continued

	Pct. of	•	of	Potential sourc	e of
	map				
	unit 	Rating class	Value	Rating class	Value
UdeA:		 		 	
Urban land	50	 Not rated 		 Not rated	
Bainter	40	 Fair:		 Fair:	
			:	Thickest layer	0.09
	 	Bottom layer	0.69 	Bottom layer	0.84
UdeB:	i	İ	i		i
Urban land	50	Not rated		Not rated	
Bainter	40	 Fair:		 Fair:	
	i	Thickest layer		Thickest layer	0.09
		Bottom layer	0.69	Bottom layer	0.84
UdeC:	i	 			
Urban land	50	Not rated	į	Not rated	į
Bainter	40	 Pair:		 Fair:	
Bainter	40	'	0.00	'	0.09
	į	Bottom layer	0.69	Bottom layer	0.84
UdkA:		 		 	
Urban land	50	 Not rated		 Not rated	
_					
Brady	40	Fair: Thickest layer	•	Fair: Thickest layer	0.07
	i	Bottom layer	:	Bottom layer	0.76
UdzA: Urban land	 50	 Not rated		 Not rated	
	i	İ	i		i
Auten	40	Poor:	'	Fair:	
	i	Thickest layer Bottom layer	:	Thickest layer Bottom layer	0.00
	į		į		į
UeaA: Urban land	 50	 Not rated		 Not rated	
ordan Tand	30			 	
Crosier	40	!		Poor:	
		Bottom layer Thickest layer	0.00	·	0.00
	i				
UeqA:				 	
Urban land	50 	Not rated 		Not rated	
Gilford	40	Poor:		 Fair:	
	!		:	Thickest layer	0.08
	 	Bottom layer	0.00	Bottom layer	0.43
UewA:	i				
Urban land	50	Not rated		Not rated	
Brems	25	 Poor:		 Fair:	
	i	Bottom layer	0.00		0.17
		Thickest layer	0.00	Thickest layer	0.17
Morocco	 15	 Poor:		 Fair:	
		Bottom layer	0.00		0.43
		Thickest layer	0.00	Bottom layer	0.67

Table 15a.--Construction Materials--Continued

	of		of	Potential sourc	e of
	map				
	unit 	Rating class	Value	Rating class	Value
_	ļ				
UfbA: Urban land		 Not rated		 Not rated	l
ordan land	50				i
Brookston	40	Poor:	•	Poor:	İ
				Bottom layer	0.00
	 	Thickest layer	0.00	Thickest layer	0.00
UfhA:	İ				
Urban land	50	Not rated		Not rated	-
Coloma	1 40	Boome		Poine	
COIOMa	40	'		Fair: Thickest layer	0.58
	İ			Bottom layer	0.84
		ĺ	İ	ĺ	İ
UfhB:				 NT-11-3	
Urban land	50	Not rated 		Not rated	l I
Coloma	40	Poor:		Fair:	i
		Bottom layer	0.00	Thickest layer	0.58
		Thickest layer	0.00	Bottom layer	0.84
UfhC:	 	 		 	l I
Urban land	50	Not rated		Not rated	i
		!		!	1
Coloma	40	•		Fair:	
	 			Thickest layer Bottom layer	0.58
	İ				
UfmA:		!		!	
Urban land	50	Not rated		Not rated	l I
Coupee	40	 Fair:		 Fair:	i
-	į	•		Thickest layer	0.00
		Bottom layer	0.66	Bottom layer	0.50
UfrA:		 		 	l I
Urban land	50	 Not rated		 Not rated	i
	į	İ	i	İ	i
Del Rey	40	•		Poor:	
		:		Bottom layer Thickest layer	0.00
		Thickest layer 		Inickest Tayer	0.00
UftA:	į	İ	i	İ	i
Urban land	50	Not rated		Not rated	ļ
Elston	 40	 Fair:		 Fair:	
	20	'		Thickest layer	0.12
				Bottom layer	0.76
175-3.					
UfzA: Urban land	 50	 Not rated		 Not rated	
Mishawaka	45	•		Good	
			0.00	Thickest layer	0.76
	!	Thickest layer	0.00		

Table 15a.--Construction Materials--Continued

and soil name	Pct. of	gravel	e of	Potential source sand	e of
	unit			<u>.</u>	
	<u> </u>	Rating class	Value	Rating class	Value
UgaA:					
Urban land	50	Not rated		Not rated	
Morocco	40	Poor:		 Fair:	
		Bottom layer		Thickest layer Bottom layer	0.43
		Thickest layer 		Boccom Tayer	
UglA: Urban land		 Not rated		 Not rated	
Ordan land	50	Not rated		Not rated	
Osolo	40	Poor:		Fair:	
	 	Bottom layer Thickest layer		Bottom layer Thickest layer	0.10
		Inickest layer		Inickest layer	
UgrA: Urban land		 Not rated		 Not rated	
ordan land	30			 	
Rensselaer	40	Poor:		Poor:	
				Bottom layer	0.00
	 	Thickest layer 	0.00	Thickest layer	0.00
UgsA:					
Urban land	50 	Not rated 		Not rated 	
Riddles	25	:	'	Poor:	į
		Bottom layer Thickest layer	0.00	:	0.00
	 	Inickest layer	0.00	Inickest layer	0.00
Oshtemo	15	Fair:		Fair:	Ì
		Thickest layer		Thickest layer	0.11
		Bottom layer	0.68	Bottom layer 	0.58
UgsB:					
Urban land	50 	Not rated		Not rated 	
Riddles	25	•		Poor:	
	 	Bottom layer Thickest layer		Bottom layer Thickest layer	0.00
		Inickest layer		Inickest layer	
Oshtemo	15	Fair:		Fair:	-
		Thickest layer Bottom layer	0.00	Thickest layer Bottom layer	0.11
		Bottom Tayer		Bottom Tayer	
UgvA:					
Urban land	50	NOT Fated		Not rated 	
Tyner	40	•	'	Fair:	
		Bottom layer	0.00	:	0.67
		Thickest layer 	0.00	Bottom layer	0.99
UgvB:		 			
Urban land	50	NOT rated	1	Not rated 	
Tyner	40	Poor:	ĺ	Fair:	İ
		Bottom layer	0.00		0.67
		Thickest layer	0.00	Bottom layer	0.99

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of	gravel	of	Potential source	e of
	map				
	unit	Rating class	Value	Rating class	Value
	†				
UgvC:				!	
Urban land	50	Not rated		Not rated	
Tyner	40	Poor:		 Fair:	
		Bottom layer	0.00		0.67
		Thickest layer	0.00	Bottom layer	0.99
UgvD:					İ
Urban land	50	Not rated	į	Not rated	į
Tyner	40	Poor:		 Fair:	
		Bottom layer	0.00	Thickest layer	0.67
		Thickest layer	0.00	Bottom layer	0.99
UhmA:				 	
Urban land	50	Not rated	İ	Not rated	į
Hillsdale	40	Poor:		 Fair:	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.07
UhmB:					İ
Urban land	50	Not rated	İ	Not rated	
Hillsdale	40	Poor:		 Fair:	i
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.07
UhoC:					
Urban land	50	Not rated		Not rated	İ
Hillsdale	30	 Poor:		 Fair:	
	i	Bottom layer	0.00	Bottom layer	0.01
	ļ	Thickest layer	0.00	Thickest layer	0.07
Oshtemo	 15	 Fair:		 Fair:	
		Thickest layer	0.00	'	0.11
		Bottom layer	0.68	Bottom layer	0.58
UhoD:				 	
Urban land	50	Not rated		Not rated	
Hillsdale	30	Poor:		 Fair:	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.07
Oshtemo	15	 Fair:		 Fair:	
	İ	Thickest layer	0.00	Thickest layer	0.11
		Bottom layer	0.68	Bottom layer	0.58
UhpC:				 	
Urban land	50	Not rated		Not rated	į
Hillsdale	30	Poor:		 Fair:	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.07
Tracy	 15	 Fair:		 Fair:	
				:	10.04
		Thickest layer	0.00	Thickest layer	0.04

Table 15a.--Construction Materials--Continued

and soil name	Pct.	gravel	of	Potential sourc	e of
	map				
	unit	Rating class	Value	Rating class	Value
	i	ĺ	i	İ	i
UhpD:					
Urban land	50	Not rated		Not rated	
Hillsdale	30	 Poor:		 Fair:	i
	i	Bottom layer	0.00	Bottom layer	0.01
	İ	Thickest layer	0.00	Thickest layer	0.07
Tracy	 15	 Fair:		 Fair:	
•	i	Thickest layer	'	Thickest layer	0.04
	į	Bottom layer	0.23	Bottom layer	0.43
UhwA:		 		 	
Urban land	50	 Not rated		Not rated	
Martinsville		 Peems		 Eader:	
martinsville	40	Bottom layer	'	Fair: Thickest layer	0.00
	i	:		Bottom layer	0.03
	İ	İ	İ	İ	i
UhwB: Urban land	50	Not rated		 Not rated	
ordan land	30			 	
Martinsville	40	Poor:		Fair:	
		Bottom layer	0.00		0.00
		Thickest layer	0.00	Bottom layer	0.03
UhwC:	i	İ	İ	İ	
Urban land	50	Not rated		Not rated	
Martinsville	40	Poor:		 Fair:	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
UkaA:	i		İ	İ	
Urban land	50	Not rated		Not rated	
Maumee	40	 Poor:		 Fair:	
	İ	Bottom layer	0.00	Thickest layer	0.58
		Thickest layer	0.00	Bottom layer	0.97
UkeA:				 	
Urban land	50	Not rated		Not rated	
Milford	40	 Poor:		 Poor:	
	i	!	:	Bottom layer	0.00
	ļ	Thickest layer	0.00	Thickest layer	0.00
UkxA:		 		 	
Urban land	50	Not rated	į	Not rated	į
Oshtemo	40	 Fair:		 Fair:	
		:	:	Thickest layer	0.11
	ļ	Bottom layer	0.68	Bottom layer	0.58
UkxB:		 		 	
Urban land	50	Not rated	į	Not rated	
Oshtemo	40	 Fair:		 Fair:	
OBMCEMIO	40	Thickest layer	0.00	:	0.11
	į	Bottom layer	0.68	:	0.58

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. Potential source of of gravel map		Potential source of sand		
	unit	 Rating class	Value	Rating class	Value
	<u> </u>	Racing class	value	Racing class	value
UkxC:	į		i		i
Urban land	50	Not rated		Not rated	
Oshtemo	 40	 Fair:	l	 Fair:	l
				Thickest layer	0.11
	į	Bottom layer	0.68	Bottom layer	0.58
UmfB:	 	 		 	
Urban land	50	Not rated	į	Not rated	į
Riddles	25	 Poor:		 Poor:	
	į	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Metea	 15	 Poor:		 Fair:	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.13
UmfC:		 		 	
Urban land	50	Not rated		Not rated	
Riddles	25	 Poor:		 Poor:	l
	i	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Metea	 15	 Poor:		 Fair:	
	į	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.13
UmfD:		 		 	
Urban land	50	Not rated		Not rated	
Riddles	25	Poor:		Poor:	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Metea	15	Poor:		 Fair:	
	İ	Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.13
UmpA:		 		 	
Urban land	50	Not rated		Not rated	
Schoolcraft	40	 Fair:		 Fair:	
	ĺ	Thickest layer	0.00	Thickest layer	0.67
		Bottom layer	0.69	Bottom layer	0.90
UmuA:	İ	 		 	İ
Urban land	50	Not rated		Not rated	
Southwest	40	Poor:		 Poor:	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UmwA:		 		 	
Urban land	50	Not rated		Not rated	
Tracy	40	 Fair:		 Fair:	
		Thickest layer	0.00	Thickest layer	0.04
	1	Bottom layer	0.23	Bottom layer	0.43

Table 15a.--Construction Materials--Continued

		1		1	
	Pct.	'	of	Potential source	e of
and soil name	of	-		sand	
	map				
	unit 	'	Value	Rating class	Value
	!			[[
UmwB: Urban land	50	 Not rated		 Not rated	
Tracy	40	 Fair:	 	 Fair:	
	į	Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.23	Bottom layer	0.43
UmwC:	 	 	 	 	
Urban land	50	 Not rated 	 	 Not rated 	
Tracy	40	 Fair:		Fair:	i
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.23	Bottom layer	0.43
UmwD:		 	 	 	
Urban land	50	 Not rated 	 	Not rated	
Tracy	40	 Fair:		Fair:	
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.23	Bottom layer	0.43
UmxA:		 	 	 	
Urban land	50	 Not rated 	 	 Not rated 	
Troxel	40	Poor:		 Fair:	i
		: -	0.00	: -	0.00
		Bottom layer	0.00	Bottom layer	0.03
UnoA:	İ				
Urban land	50	Not rated		Not rated	!
Whitaker	 40	Poor	 	 Fair:	
		1	'	Thickest layer	0.00
	į	Bottom layer	0.00	Bottom layer	0.08
UnqB:		 	l i	 	
Urban land	50	 Not rated		 Not rated	
	İ	İ	İ	İ	į
Williamstown	25	•	'	Poor:	
			0.00	Bottom layer Thickest layer	0.00
	i				İ
Crosier	15		'	Poor:	
					0.00
	i	Interest tayer		Interest tayer	
UntA:	ļ	!		!	ļ.
Urban land	50 	Not rated		Not rated	
Wunabuna, drained	40	Poor:		Poor:	
	İ	•	'	:	0.00
		Thickest layer	0.00	Thickest layer	0.00
Usl:	l I	 	 	 	
Udorthents, rubbish-	100	Not rated		 Not rated	
	ļ				!
W: Water	100	 Not rated		 Not rated	
Macer	1 - 00	I Tacea	1	I Taced	1

Table 15a.--Construction Materials--Continued

Map symbol	Pct.	Potential source	e of	Potential source	e of
and soil name	of	gravel		sand	
	map	:			
	unit	'			
		Rating class	Value	Rating class	Value
WcnAI:	 	 	l	 	l I
Waterford	80	Fair:	i	Fair:	i
	İ	Thickest layer	0.00	Thickest layer	0.00
	į	Bottom layer	0.71	Bottom layer	0.67
WoaA:		 		 	
Williamstown	 85	Poor:	i	 Poor:	l
11222200000		Bottom layer		Bottom layer	0.00
	İ	Thickest layer	0.00	Thickest layer	0.00
W70					
WoaB2: Williamstown	 85	 Poor:		 Poor:	
		Bottom layer		Bottom layer	0.00
	İ	Thickest layer		Thickest layer	0.00
WoaC2: Williamstown	 80	 Poor:	l	 Poor:	l
		Bottom layer	0.00	•	0.00
	İ	Thickest layer	0.00		0.00
1					
WobB: Williamstown	 50	 Poor:	l	 Poor:	l
		Bottom layer	1	Bottom layer	0.00
	İ	Thickest layer	0.00	Thickest layer	0.00
Crosier	30	Poor:		Poor:	
Clobiel	1 30	Bottom layer	0.00	!	0.00
		Thickest layer	0.00		0.00
	[!		!	Ţ
WrxAN: Wunabuna, drained	 0E	Boome		Poor:	
wunabuna, urameu	65	Bottom layer		Bottom layer	0.00
		Thickest layer	0.00		0.00
	[!		!	Ţ
WtbA: Whitaker	 75	 Poor:		 Fair:	
WIII CAREL	/3	Thickest layer	'	Thickest layer	0.00
		Bottom layer	'	Bottom layer	0.08
		ĺ	ĺ	ĺ	ĺ
WujB: Williamstown		Poor:		Poor:	
WIIIIamstown	4:5	Bottom layer	'	Bottom layer	0.00
		Thickest layer	0.00		0.00
Moon	40	Poor:	'	Fair:	
	l I	Bottom layer	0.00	Bottom layer	0.00
	I	Thickest layer	0.00	Thickest layer	0.13

Table 15b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

and soil name	Pct. of map	reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
AahAK:		 		 		 	
Abscota	 80	Poor:	 	Good		Poor:	
	ĺ	'	0.00		i	Too sandy	0.00
	İ	· -	0.00	İ	i	Rock fragments	0.50
	İ	:	0.00	İ	i	İ	i
	İ	organic matter	İ	İ	İ	İ	İ
		Droughty	0.26				
AatAN:	 	 	 	 		 	
Ackerman, drained	85	Poor:	İ	Poor:	i	Poor:	i
	İ	Too sandy	0.00	Depth to	0.00	Too sandy	0.00
	İ	Wind erosion	0.00	saturated zone	İ	Depth to	0.00
		Low content of	0.18		İ	saturated zone	ĺ
		organic matter				Carbonate content	0.92
		Carbonate content	0.92				
Abhan:	 	 	 	 		 	
Adrian, drained	75	Poor:	ĺ	Poor:	İ	Poor:	ĺ
		Wind erosion	0.00	Depth to	0.00	Depth to	0.00
		Low content of	0.18	saturated zone		saturated zone	
		organic matter				Content of	0.00
		Carbonate content	0.92	 		organic matter	
AbhAU:		 		 		 	
Adrian, undrained	75	Poor:		Poor:		Poor:	
		Wind erosion	0.00	Depth to	0.00	Depth to	0.00
		Low content of	0.18	saturated zone		saturated zone	
		organic matter				Content of	0.00
		Carbonate content	0.92	 		organic matter	
ApuAN:							
Antung, drained	75	Poor:		Poor:		Poor:	
		Too sandy	0.00	Depth to	0.00	Too sandy	0.00
		!	0.00	saturated zone		Depth to	0.00
		'	0.18			saturated zone	
		organic matter				Rock fragments	0.50
	 	Carbonate content	0.92 	 		Carbonate content	0.92
AxvA:	İ		İ		į		į
Auten	82	!	1	Poor:	1	Poor:	
		Droughty	0.24	Depth to	0.00	Depth to	0.00
	 		0.50		0.00	saturated zone	
	l I	organic matter Too acid	0.95	Low strength Shrink-swell	0.87	İ	1
		100 acid		SHITHK-SWEIT		 	
BaaA:		Paire	 	Cood		Poire	
Bainter	00	!	0.50	Good	I	Fair: Hard to reclaim	0.32
	I I	organic matter	0.50 	 	I	'	0.32
		, ,	 0.97	 		Nock fragments	
BaaB:	 	 	 	 		 -	
Bainter	 85	 Fair:	 	 Good		 Fair:	
	ĺ	Low content of	0.50		İ	Hard to reclaim	0.32
	ı	organic matter	I	I	I	Rock fragments	0.88
	I	Organic maccer	1	I .	1	1.00m zzagmonos	1

Table 15b.--Construction Materials--Continued

	Pct. of map	reclamation mater:		Potential source	of	Potential source topsoil	of
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaaC2: Bainter	 85 	organic matter	 0.50 0.97	 Good 	 	 Fair: Hard to reclaim Rock fragments	 0.32 0.88
BbmA: Baugo	 85 	organic matter	0.02	 Poor: Depth to saturated zone	 0.00	 Poor: Depth to saturated zone	 0.00
BmgA:	 	!	0.68 0.90 0.98 	 	 	Too clayey Hard to reclaim 	0.64 0.94
Blount	85 	organic matter Too clayey Too acid	0.12 0.50 0.68 0.90	Poor: Depth to saturated zone Low strength Shrink-swell	 0.00 0.00 0.87	Poor: Depth to saturated zone Hard to reclaim Too clayey	 0.00 0.05 0.29
BshA: Brady	 90 	Low content of organic matter	0.00	 Poor: Depth to saturated zone 	 0.00 	Poor: Depth to saturated zone Rock fragments	0.00
BsxA: Brems	 50 	Low content of organic matter Too sandy	 0.00 0.12 0.14 0.54	: -	 0.89 	 Fair: Too sandy Depth to saturated zone	 0.14 0.89
Morocco	 40 	Too sandy Wind erosion Low content of organic matter	 0.00 0.00 0.12 0.54	saturated zone	 0.00 	 Poor: Too sandy Depth to saturated zone Too acid	 0.00 0.00 0.98
BteA: Brems	 80 	Wind erosion Low content of organic matter Too sandy	 0.00 0.12 0.14 0.54	: -	 0.89 	 Fair: Too sandy Depth to saturated zone	 0.14 0.89
BuuA: Brookston	 80 	 Fair: Carbonate content 	'	 Poor: Depth to saturated zone Low strength Shrink-swell	 0.00 0.00 0.96	 Poor: Depth to saturated zone 	 0.00

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater:		Potential source of roadfill		Potential source of topsoil 	
		'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
					i		i
CmbAI: Cohoctah	75	 Fair:	 	 Poor:	i I	Poor:	
	 	Carbonate content	0.54	Depth to saturated zone	0.00	Depth to saturated zone	0.00
CnbA:	 	 	 	 		 	
Coloma	 85	Poor	l I	Good	1	Poor:	1
COTOMA	03	:	0.00			Too sandy	0.00
	 	:	0.00	 		100 banay	1
	 	!	0.12	 		 	i
	l I	organic matter	0.12	 	I	 	1
	! 	· -	0.88	 			
İ	İ	İ	İ	İ	i		i
CnbB:		!		!			!
Coloma	85			Good		Poor:	
			0.00			Too sandy	0.00
		:	0.00				
		!	0.12				
		organic matter					
	 	Too acid	0.88	 		 	
CnbC:	 	 	 	 	I I	 	
Coloma	85	Poor:	İ	Good	i	Poor:	i
i	İ	Too sandy	0.00	İ	i	Too sandy	0.00
i	İ	Wind erosion	0.00	İ	i	i İ	i
i		Low content of	0.12	İ	İ	İ	i
İ	İ	organic matter	İ	İ	İ	İ	i
		Too acid	0.88				
CnbD:		 Deem-	 	 Good		 Poor:	
COTOMa	65	!	0.00	Good	1	Too sandy	0.00
	l I	:	0.00	 	I	Slope	0.04
	l I	!	0.12	 	1	slobe	10.04
	 	organic matter		 	İ	 	i
			0.88				i
İ	İ	İ	İ	İ	İ		į
CrrA:		<u> </u>		!			
Coupee	85	:		Poor:		Good	
		:	0.54	Low strength	0.00		
	 	Water erosion	0.99	 		l I	
CvdA:						! 	
Crosier	85	Fair:	İ	Poor:	i	Poor:	i
İ		Low content of	0.50	Depth to	0.00	Depth to	0.00
		organic matter		saturated zone		saturated zone	
İ		Carbonate content	0.68	Low strength	0.00	Hard to reclaim	0.99
		Too acid	0.97	Shrink-swell	0.99		
		Water erosion	0.99				
CvdB:	 	 	 	 		 	[
Crosier	80	 Fair:		 Poor:		Poor:	
		Low content of		:			0.00
İ		organic matter		saturated zone		saturated zone	ĺ
		Carbonate content	0.68	Low strength	0.00	Hard to reclaim	0.99
j	İ	Too acid	0.97	Shrink-swell	0.99		

Table 15b.--Construction Materials--Continued

and soil name	 Pct. of map			 Potential source roadfill 	of	 Potential source topsoil 	of
	unit 	'	Value	Rating class and limiting features	'	Rating class and limiting features	Value
CwkA: Crumstown	 80 	Too sandy Low content of organic matter	 0.01 0.88 0.95	 Good 	 	 Fair: Too sandy 	 0.01
CwkB: Crumstown	 80 	Wind erosion Too sandy Low content of organic matter	 0.00 0.01 0.88 	:	 	 Fair: Too sandy 	 0.01
DcrA: Del Rey	 85 	Too clayey Low content of organic matter Carbonate content Too acid	0.00	Low strength Shrink-swell	 0.00 0.00 0.87	 Poor: Depth to saturated zone Too clayey	 0.00 0.00
EchAN: Edwards, drained	 80 		0.00		 0.00 	!	 0.00 0.00
EchAU: Edwards, undrained	 75 		0.00	: -	:	 Poor: Depth to saturated zone Content of organic matter	0.00
EcrAN: Edselton, drained	 70 		0.00		 0.00 	 Poor: Carbonate content Depth to saturated zone	 0.00 0.00
EcrAU: Edselton, undrained-	 70 	'	0.00		 0.00 	saturated zone	 0.00 0.00
EmeA: Elston	 85 	Carbonate content Too acid	 0.32 0.74 0.88	 Good 	 	 Good 	
GczA:	 75 		 0.12 	 Poor: Depth to saturated zone	 0.00 	 Poor: Depth to saturated zone	 0.00

Table 15b.--Construction Materials--Continued

	Pct. Potential source of of reclamation material map unit			Potential source roadfill	Potential source topsoil	e of	
	 	'		Rating class and limiting features		Rating class and limiting features	Valu
GdnA: Gilford	 75 	 Fair: Low content of organic matter	'	 Poor: Depth to saturated zone	'	 Poor: Depth to saturated zone	 0.00
HfbAN: Henrietta, drained	 80 	Wind erosion	0.00	saturated zone		 Poor: Depth to saturated zone Rock fragments	0.00
HfbAU: Henrietta, undrained	 75 	Wind erosion	0.00	saturated zone	'	 Poor: Depth to saturated zone Rock fragments	0.00
Hkka: Hillsdale	 80 	Too acid	 0.68 0.88	•	 	 Good 	
HkkB: Hillsdale	 80 	Too acid	 0.68 0.88	 Good 	 	 Good 	
HknC2: Hillsdale	 55 	Too acid	 0.68 0.88	:	 	 Good 	
Oshtemo	 30 	Carbonate content Low content of organic matter	 0.32 0.88 0.97	 Good 	 	 Good 	
HknD2: Hillsdale	 55 	•	0.68	•	 	 Fair: Slope 	 0.04
Oshtemo		Carbonate content Low content of organic matter	0.32	 	 	 Fair: Slope 	 0.04

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	reclamation mater		Potential source	of	Potential source of topsoil		
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
HkpC2: Hillsdale	 55 	!	 0.68 0.88	 Good 	 	 Good 	 	
Tracy	 30 	Too acid	 0.20 0.88 	 Good 	 	 Fair: Too acid Rock fragments Hard to reclaim	 0.76 0.94 0.99	
HkpD2: Hillsdale	 55 	Too acid	 0.68 0.88	 Good 	 	 Fair: Slope 	0.04	
Tracy	 30 	Too acid	 0.20 0.88 	 Good 	 	 Fair: Slope Too acid Rock fragments Hard to reclaim	 0.04 0.76 0.94 0.99	
HtbAN: Houghton, drained	 75 		 0.00 	 Poor: Depth to saturated zone	 0.00 	 Poor: Depth to saturated zone Content of organic matter	0.00	
HtbAU: Houghton, undrained-	 75 	'	 0.00 	 Poor: Depth to saturated zone	 0.00 	Poor: Depth to saturated zone Content of organic matter	0.00	
JaaAK: Jamestown	 80 	 Fair: Carbonate content 	 0.68 	 Poor: Depth to saturated zone Low strength	 0.00 0.00	 Poor: Depth to saturated zone 	 0.00 	
MfaA: Martinsville	 70 	Carbonate content Too acid Low content of organic matter	0.80 0.84 0.88	 Fair: Low strength 	 0.22 	 Fair: Rock fragments 	 0.97 	
MfaB2: Martinsville	 70 	Carbonate content Too acid Low content of organic matter		 Fair: Low strength 	 0.22 	 Fair: Rock fragments 	 0.97 	

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater		Potential source roadfill	of	Potential source topsoil	of
		'	Value	Rating class and	Value	Rating class and	Value
MfaC2: Martinsville	 80			 Fair:		 Fair:	
	 	Low content of organic matter	0.80 0.84 0.88 0.99	Low strength	0.22 	Rock fragments 	0.97
MfrAN:							
Madaus, drained	80 	Wind erosion Carbonate content	0.00	Poor: Depth to saturated zone 	 0.00 		 0.00 0.00
MfrAU:							
Madaus, undrained	75 	Wind erosion Carbonate content	0.00		 0.00 		 0.00 0.00
MgcA:	 	 	 	 		 	
Maumee	80 	Wind erosion	0.00	Poor: Depth to saturated zone	0.00	Poor: Depth to saturated zone	0.00
	 	<u>-</u>	0.50 0.92	 	 		0.22
MgdAN:	 	 	 	 		 	
Martisco, drained	75 	Wind erosion Carbonate content	0.00	Poor: Depth to saturated zone 	 0.00 		 0.00 0.00
MhaA:	 	 	 	 		 	
Maumee	80	Wind erosion	0.00	: -	0.00	-	0.00
	 	-	0.22 0.50 0.92	saturated zone 		saturated zone Too sandy	 0.22
MhbA:	 	 	 	 		 	
Maumee	90 	Wind erosion	0.00 0.22 0.50	 	0.00	saturated zone	 0.00 0.22
MmbC2:	! 	 					
Miami	80 	Carbonate content Too acid Low content of	0.46 0.74 0.88	Depth to	0.00	Fair: Depth to saturated zone Hard to reclaim	
	 	Droughty	 0.92 0.99	İ		 	

Table 15b. -- Construction Materials -- Continued

Map symbol and soil name	Pct. of map	reclamation mater:		Potential source roadfill	of	Potential source topsoil	e of
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
MmdC3: Miami	80	 Fair: Carbonate content	'	 Poor: Low strength	 0.00	 Fair: Hard to reclaim	 0.65
			0.74		0.89	Depth to	0.89
	ì		0.87	-		saturated zone	
	ì		0.88	Shrink-swell	0.95		i
	İ	organic matter	i İ		İ		i
	Ì	Water erosion	0.99		İ		į
MmdD3:							
Miami	80	1	'	Poor:	'	Fair:	
		Carbonate content			0.00		0.04
	1	1	0.74		0.89	Hard to reclaim	0.65
	I I	1 5	0.87 0.88		0.95	Depth to saturated zone	0.89
	 	organic matter	0. 00	Shrink-swell	0.95	saturated zone	
	i I		0.99	 		 	1
	ì				İ		i
MouA:	i	İ	İ		İ		i
Milford	85	Poor:		Poor:	Ì	Poor:	İ
		Too clayey	0.00	Depth to	0.00	Depth to	0.00
		Water erosion	0.90	saturated zone		saturated zone	
				Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.87		
W1			 			1	
MsaA: Mishawaka	05	Book	 	 Good		 Poor:	
MISHawaka	33	1	0.00	Good	l l	'	0.00
	i I		0.12	 		Too sandy	0.00
	ì	organic matter			İ	Rock fragments	0.97
	ì		0.74	<u> </u>	İ		ĺ
	į	İ	İ		į		į
MtsB2:							
Morley	75	Poor:		Poor:		Poor:	
		Carbonate content	'		0.00		0.00
			0.08		0.12		0.06
			0.22	-	0.53	Depth to	0.53
	 	Low content of organic matter	0.88	saturated zone	1	saturated zone	
			0.90	 		 	
	i				İ		i
MtsC2:	į	İ	İ		İ		i
Morley	80	Poor:		Poor:	Ì	Poor:	İ
		Carbonate content	0.00	Low strength	0.00	Hard to reclaim	0.00
		Too clayey	0.08	Shrink-swell	0.12		0.06
			0.22		0.53	: -	0.53
			0.88	saturated zone		saturated zone	
		organic matter	 0.90	 -		Slope	0.96
	I I	Water erosion	U.90 	 	 	 	1
MubD3:	İ			! 		! 	
Morley	80	Poor:		Poor:	İ	Poor:	i
-	i	Carbonate content	'	'	0.00	'	0.00
	i		0.07		0.12		0.00
		2204907					
			0.08	Depth to	0.53	Too clayey	0.06
	 	Too clayey	0.08	-	0.53	Too clayey Depth to	0.06

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	Potential source reclamation mater		Potential source roadfill	of	Potential source topsoil	of
	 	Rating class and	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MvhAN: Moston, drained	 80 		0.00	 Poor: Depth to saturated zone	 0.00 	 Poor: Depth to saturated zone Content of organic matter	 0.00 0.00
MvhAU: Moston, undrained	 75 		0.00	: -	 0.00 	 Poor: Depth to saturated zone Content of organic matter	 0.00 0.00
MvkA: Morocco	 85 	Too sandy	 0.00 0.00 0.12 0.54	 Poor: Depth to saturated zone 	 0.00 	 Poor: Too sandy Depth to saturated zone Too acid	 0.00 0.00 0.98
MwzAN: Muskego, drained	75 75 		 0.00 	 Poor: Depth to saturated zone Low strength	0.00	Poor: Depth to saturated zone Content of organic matter	0.00
MwzAU: Muskego, undrained	 70 		 0.00 	 Poor: Depth to saturated zone Low strength	 0.00 0.22 	 Poor: Depth to saturated zone Content of organic matter	0.00
OkrA: Oshtemo	 80 	Carbonate content Low content of organic matter		 Good 	 	 Good 	
OkrB: Oshtemo	 80 	Wind erosion Carbonate content Low content of organic matter	0.00 0.32 0.88	 Good 	 	 Good 	
OkrC2: Oshtemo	 80 	Wind erosion Carbonate content Low content of organic matter	0.00	 Good 	 	 Good 	

Table 15b.--Construction Materials--Continued

and soil name	of map			Potential source roadfill	of	Potential source	of
	unit 		Value	 Rating class and limiting features	'	Rating class and limiting features	Value
OkrD:	80	Poort	 	 Good	 	 Fair:	
Osircemo	80		0.00	GOOG	l I	Slope	0.04
	l I	Carbonate content		 	l I	blobe	10.04
	l I		0.88	 	l I	 	l I
	l I	organic matter		 	l I	 	l I
	l I		0.97	 	 		
	l I	100 4014	1	 	 		
OlcA:	i I	 	 	 	 		i i
Oshtemo	 80	 Fair:	 	Good	 	Good	
OBITECINO	00	Carbonate content			 		
	l I		0.88	 	l I	 	l I
	 	organic matter		 	l I	 	l I
	 		0.97	 	l I	 	l I
	l I	100 acid	0.37	 	l I	 	1
OleR.	1	 	 	 	 	 	
OlcB:		 Tain.	 	 Good	 	 a = 4	
Oshtemo	00	Carbonate content	1	Good	 	Good	
	l I		0.88	 	l I	 	1
	l I	organic matter	10.00	 	l I	 	1
	l I		 0.97	 	 	<u> </u>	
	l I	100 acid	0.37	 	l I	 	1
OlcC2:	l I	l I	l I	 	l I	 	1
Oshtemo	 on	 Poins	l I	 Good	l I	 Good	1
Osiicemo	00			GOOG	l I	Good	1
	1	Carbonate content		 	 	 	
	1	Low content of		 	 	 	
	l I	organic matter Too acid	0.97	 	l I	 	1
	l I	100 acid	0.97	 	 	<u> </u>	
OlcD:	l I	 	l I	 	l I	 	l l
Oshtemo	 80	 Fair:	l I	Good	l I	 Fair:	l l
OBITCEMO	00	Carbonate content		9000	l I	Slope	0.04
	l I		0.88	 	 	blope	
	l I	organic matter		 	 		
	i I		0.97	 	! 	 	
	i I	100 4014	0.57	 	 		i i
OmgA:	i I	 	! 	 	! 	 	
Osolo	85	Poor:	 	Good	 	 Fair:	İ
			0.00		 	Too sandy	0.04
	i	'	0.04				
	i		0.12		İ		i
	i	organic matter	1	 	İ		i
	i		0.97		i		İ
	i				i İ		İ
PaaAN:	İ		İ		İ		İ
Palms, drained	80	Poor:	İ	Poor:	İ	Poor:	İ
	i	Wind erosion	0.00	Depth to	0.00	Depth to	0.00
	İ	Water erosion	0.99	saturated zone	İ	saturated zone	İ
	ĺ		ĺ	Low strength	0.22	Content of	0.00
						organic matter	
PaaAU:							
Palms, undrained	75	Poor:		Poor:		Poor:	
		Wind erosion	0.00	Depth to	0.00	Depth to	0.00
		Water erosion	0.99	saturated zone		saturated zone	
				Low strength	0.22	Content of	0.00
						organic matter	
Pmg:							
Pits, gravel	100	Not rated		Not rated		Not rated	

Table 15b.--Construction Materials--Continued

of map	reclamation mater:				Potential source topsoil	e of
	'	Value	Rating class and	Value	Rating class and limiting features	Value
85	 Not rated 	 	 Not rated 	 	 Not rated 	
				İ		i
85	Not rated		Not rated 		Not rated 	
			İ	İ	İ	İ
80			!		!	
			: -	0.00	: -	0.00
		0.88	saturated zone		'	
	organic matter	 	 		Rock fragments	0.88
						İ
75	 Fair•	 	Poor	1	Poor	
, 5			!	'	!	0.00
	'	'		İ	saturated zone	i
	organic matter		ĺ	İ	Too acid	0.88
					Rock fragments	0.94
85	Fair:	İ	Poor:	į	Poor:	i
	'	'	Depth to	0.00	Depth to	0.00
		0.88	!		saturated zone	
	organic matter	 	Shrink-swell	0.99	Rock fragments	0.97
				İ		i
75	Fair:		Poor:		Poor:	
				0.00	: -	0.00
		0.88 	!	0.99	!	0.97
50			Good	1	!	0.00
		0.12	 		Hard to rectain	
		0.46		i		i
	Too acid	0.88	İ	İ	İ	İ
	Water erosion	0.99				
35	 Fair:	 	 Good		 Good	
	Carbonate content	0.32	İ	į	İ	į
	'	'				
		'				
	Too acid	0.97	 		 	
	İ	İ	İ	İ	İ	İ
50			!		'	
		0.12	 	1	Hard to reclaim	0.00
		 0.46	 	l I	 	
	'	'	 	i	 	i
	'	'	İ	İ	İ	İ
2 =	Poors	 	Cood		Cood	
35			:	 	 GOOG	1
	'	'	İ	i	İ	i
	organic matter					
	of map unit 85 85 85 80 35 50	of reclamation mater: map unit	of reclamation material map unit	of reclamation material roadfill map unit Rating class and Value Rating class and limiting features	of reclamation material roadfill map unit Rating class and limiting features Value Rating class and limiting features Value Imiting features 85 Not rated Not rated Not rated 85 Not rated Not rated 0.00 86 Fair: Poor: 0.00 1 Low content of low saturated zone organic matter Depth to low content low saturated zone organic matter 0.00 85 Fair: Poor: Poor: 1 Carbonate content low saturated zone organic matter Shrink-swell 0.00 85 Fair: Poor: Poor: 2 Carbonate content low saturated zone organic matter Shrink-swell 0.99 75 Fair: Poor: Poor: 35 Fair: Good O.00 4 Low content of low saturated zone organic matter Shrink-swell 0.99 50 Fair: Good O.00 4 Carbonate content low saturated zone organic matter O.46 O.32 50	Teclamation material Technolisms Techn

Table 15b.--Construction Materials--Continued

and soil name	Pct. of			Potential source	of	Potential source	of
	map						
	unit	'					
			Value			Rating class and	Value
		limiting features		limiting features		limiting features	
			!		!		!
RopC2:							!
Riddles	50	'		Good		Poor:	
		1	0.12	 		Hard to reclaim	0.00
	 	organic matter Carbonate content	10 46	 		 	
	l I		0.88	 	1	 	I
	 		0.99	 		 	1
	 	Matter Crobion	0.55	 		 	i
Oshtemo	35	 Fair:	İ	Good		Good	i
	55	Carbonate content					i
			0.88		i		i
	İ	organic matter		İ	i	İ	i
	İ	Too acid	0.97	İ	i	İ	i
			İ		İ		
RopD2:							
Riddles	50	Fair:		Good		Poor:	
		Low content of	0.12			Hard to reclaim	0.00
		organic matter				Slope	0.04
		Carbonate content	0.46				
		'	0.88				
		Water erosion	0.99				
Oshtemo	35			Good		Fair:	!
		Carbonate content				Slope	0.04
		1	0.88				
		organic matter					
		Too acid	0.97			1	
D D		 	1	 			
RoqB: Riddles	 EE	 Tain:	1	 Good		 Poor:	
RIGGIES	55		0.12			!	0.00
	l I	organic matter	0.12	 	I	Hard to recraim	10.00
	 	Carbonate content	0.46	 		 	i
			0.88				i
			0.99		i		i
	İ		İ		i		i
Metea	30	Poor:	i	Good	i	Fair:	i
	İ	Wind erosion	0.00	İ	İ	Too sandy	0.14
		Low content of	0.12		İ		ĺ
		organic matter					
		Too sandy	0.14				
		Too acid	0.84				
		Carbonate content	0.92				
						<u> </u>	
RoqC2:				 	!		
Riddles	55	'		Good		Poor:	
		Low content of	0.12			Hard to reclaim	0.00
		organic matter		 			
	 	Carbonate content		'		 	1
	l I	'	0.88 0.99	'	I	 	1
	I I	Mater erosion	0.33 	 	I	 	1
Metea	 30	Poor:	I I	 Good	I	 Fair:	1
	50		0.00			Too sandy	0.14
	i I		0.12			100 bandy	
	i	organic matter			i		
	İ		0.14		i		
	i	-	0.84	'	i	İ	i
	i	Carbonate content			i		i
	:				1	:	1

Table 15b.--Construction Materials--Continued

and soil name	of map			Potential source roadfill	of	Potential source	e of
	unit 	Rating class and limiting features	'	 Rating class and limiting features		 Rating class and limiting features	Value
Des D2 :							
RoqD2: Riddles	50	 Fair:	l I	Good	1	 Poor:	
			0.12		i	'	0.00
	i	organic matter	İ	İ	i	Slope	0.04
	į	Carbonate content	0.46	İ	į		į
		Too acid	0.88				
		Water erosion	0.99	!			!
•							
Metea	30			Good		Fair:	
			0.00		1	Slope Too sandy	0.04
		organic matter	0.12	 		100 Sandy	
	i		0.14	1	i		i
	i	-	0.84	•	i		i
	į	Carbonate content	0.92	İ	į		i
	ĺ			ĺ	İ		İ
SdzA:							
Selfridge	50	'	'	Fair:		Fair:	
		'	'		0.14	Depth to	0.14
		Carbonate content				saturated zone	
	1	-	0.56 0.88			Too sandy	0.56
		organic matter	0.00	 		 	
	i		0.97		i		i
	Ì		İ	İ	İ		İ
Crosier	35	Fair:		Poor:		Poor:	
		'	0.50	: -	0.00	Depth to	0.00
		organic matter		saturated zone		saturated zone	
		Carbonate content				Hard to reclaim	0.99
			0.97 0.99		0.99	 	
		Water erosion	0.55	 	i	 	
SdzaB:	i		İ		i		i
Selfridge	50	Poor:	İ	Fair:	į	Fair:	į
		Wind erosion	0.00	Depth to	0.14	Depth to	0.14
		Carbonate content	0.46	saturated zone		saturated zone	
		-	0.56		!	Too sandy	0.56
		'	0.88				
	1	organic matter Too acid	 0.97	 	1	 	
		100 acid 	0.37	 		 	
Brems	35	Poor:		Fair:		 Fair:	İ
	ĺ		0.00	•	0.89	'	0.14
		Low content of	0.12	saturated zone		Depth to	0.89
		organic matter				saturated zone	
		· -	0.14		!		
		Too acid	0.54				
SesA:	I I	 	l I	 	1	 	1
Schoolcraft	80	 Fair:		Good		 Good	İ
			0.12		İ		i
	ĺ	organic matter		İ			İ
		Too acid	0.68				
				!		<u> </u>	!
SnlA:							
Southwest	75			Poor:		Poor:	
	1	Water erosion	0.99	Depth to saturated zone	U.UU	Depth to saturated zone	0.00
		 	l I	Low strength	0.00	sacurated zoile	
	i	! 	' 	Shrink-swell	0.99	! 	

Table 15b.--Construction Materials--Continued

	Pct.	'		Potential source	of	Potential source	e of
	of	reclamation mater	rial	roadfill		topsoil	
	map unit	 		1		 	
		Rating class and	Value	Rating class and	Value	Rating class and	Value
	<u> </u>	limiting features	<u>i </u>	limiting features	<u>i </u>	limiting features	<u>i</u>
TmpA:		 Raim.		 Cood	1	 Fair:	
Tracy	00 	Too acid	0.20	Good	1	Too acid	0.76
	 	Low content of	0.88	 		Rock fragments	0.94
		organic matter		1	i	Hard to reclaim	0.99
	İ		i		i		
TmpB:	İ		i	İ	i		i
Tracy	80	Fair:	İ	Good	ĺ	Fair:	İ
		Too acid	0.20			Too acid	0.76
		Low content of	0.88			Rock fragments	0.94
		organic matter				Hard to reclaim	0.99
					!		
TmpC2:							
Tracy	80		10.00	Good		Fair: Too acid	10.76
	l I	Too acid Low content of	0.20	 	1	Too acid Rock fragments	0.76
	l I	organic matter	0.00	 	1	Rock fragments Hard to reclaim	0.94
	 	Organic maccer		 		naid to lectaim	0.55
TmpD:			i	1	i		i
Tracy	80	Fair:	i	Good	i	Fair:	i
•	İ	Too acid	0.20	İ	i	Slope	0.04
	İ	Low content of	0.88		į	Too acid	0.76
		organic matter				Rock fragments	0.94
						Hard to reclaim	0.99
TnwA:							
Troxel	80	'		Fair:		Good	!
		Too acid	0.95	Low strength	0.22		
m3		 -				 -	
TxuA: Tyner	 85	 Poor:	l	Good	1	 Poor:	
lyner	03	Too sandy	0.00	9000		Too sandy	0.00
		Wind erosion	0.00		i		
	İ	Low content of	0.12	İ	i	İ	i
	İ	organic matter	į		į		j
		Too acid	0.88				
TxuB:							
Tyner	85			Good	!	Poor:	
		Too sandy	0.00			Too sandy	0.00
	 	Wind erosion	0.00		1	l I	
	l I	Low content of organic matter	0.12	 	1	 	
	l I	Too acid	0.88	 	l I	 	I
				1	i		
TxuC:	İ		ĺ	i i	İ		i
Tyner	85	Poor:	ĺ	Good		Poor:	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of	0.12				
		organic matter					
		Too acid	0.88			 -	
Trend.	l I	 	1	 	1	 	
TxuD: Tyner	 QE	Poort	1	Good	I	 Poor:	l I
-11mer	03 	Too sandy	0.00		1	Too sandy	0.00
	' 	Wind erosion	0.00			Slope	0.04
	İ	Low content of	0.12	İ	i		
	İ	organic matter			İ		İ
	i	Too acid	0.88	İ	i		i
	:	:	1	:	;	:	1

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map	reclamation mater		Potential source	of	Potential source	of
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
TxuF:	 	 	 	 		 	
Tyner	80	Poor	i	Poor:	i	Poor:	i
-701	1	'	0.00	Slope	0.00	•	0.00
	1	-		Slope	10.00		
	1	'	0.00	1	1	Too sandy	0.00
			0.12				
		organic matter Too acid	 0.88	 		 	
Uam:	 	 	 	 		 	
Udorthents, loamy	100	Not rated	 	 Not rated 		 Not rated 	į į
UdeA:	İ				İ		i
Urban land	50	Not rated		Not rated		Not rated	
Bainter	40	 Fair:	 	 Good		 Fair:	
			0.50		i	Hard to reclaim	0.32
	i I	organic matter		 	i	Rock fragments	0.88
			0.97	İ			
UdeB:	 	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated	İ	Not rated	İ
Bainter	40	 Fair:		 Good		 Fair:	
		Low content of	0.50			Hard to reclaim	0.32
		organic matter				Rock fragments	0.88
		Too acid	0.97				
UdeC:	 	 	 	 	1	 	l
Urban land	50	Not rated	İ	Not rated	İ	Not rated	
Bainter	 40	 Fair:	 	 Good	1	 Fair:	
24211002	-0	'	0.50		i	Hard to reclaim	0.32
	l I	organic matter	1	 		Rock fragments	0.88
			0.97			Rock Tragments	
UdkA:	 	 	 	 	 	 	
Urban land	50	Not rated	į	Not rated	į	Not rated	į
Brady	 40	Poor:	I 	 Poor:	1	 Poor:	I I
	0	'	0.00	•	0.00	'	0.00
	İ	organic matter		saturated zone		saturated zone	
	i I	Too acid	0.84	•	İ	Rock fragments	0.50
		Carbonate content		•		Rock fragments	
UdzA:		l					
Urban land	50	 Not rated		 Not rated		 Not rated	
Auten	 40	 Fair:	 	Poor:		Poor:	
•		'		•		•	0.00
	i			saturated zone			'
	i	organic matter		•	0.00	•	i
	i				0.87	•	i
	1		, 5.55	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10.07	I .	1

Table 15b.--Construction Materials--Continued

Map symbol and soil name	of map			Potential source	of	Potential source topsoil	e of
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UeaA:		 	 	 		 	
Urban land	50	Not rated	İ	Not rated	į	Not rated	į
Crosier	40	 Fair:	 	 Poor:		Poor:	
	Ì	Low content of	0.50	Depth to	0.00	Depth to	0.00
		organic matter		saturated zone		saturated zone	
		Carbonate content	0.68	Low strength	0.00	Hard to reclaim	0.99
		Too acid	0.97	Shrink-swell	0.99		
	1	Water erosion	0.99	 	 	 	
UeqA:	İ						İ
Urban land	50	Not rated	 	Not rated		Not rated	
Gilford	40	 Fair:		Poor:		Poor:	
		Low content of	0.12	Depth to	0.00	Depth to	0.00
		organic matter		saturated zone		saturated zone	
UewA:		 		 		 	
Urban land	50	Not rated	 	Not rated		Not rated	
Brems	25	Poor:		 Fair:		 Fair:	
		Wind erosion	0.00	Depth to	0.89	Too sandy	0.14
		Low content of	0.12	saturated zone		Depth to	0.89
		organic matter				saturated zone	
		Too sandy	0.14				
		Too acid	0.54	 		 	
Morocco	15	Poor:		Poor:		Poor:	
		Too sandy	0.00	Depth to	0.00	Too sandy	0.00
		Wind erosion	0.00	saturated zone		Depth to	0.00
		Low content of	0.12			saturated zone	
		organic matter Too acid	 0.54	 		Too acid	0.98
UfbA:		 					
Urban land	50	Not rated 	 	Not rated 		Not rated 	
Brookston	40	Fair:	İ	Poor:	İ	Poor:	i
		Carbonate content	0.68	Depth to	0.00	Depth to	0.00
				saturated zone		saturated zone	
				Low strength	0.00		
		 	 	Shrink-swell	0.96	 	
UfhA:	İ						
Urban land	50	Not rated	 	Not rated		Not rated	
Coloma	40	Poor:		 Good		 Poor:	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Low content of	1				
		organic matter					
		Too acid	0.88				1

Table 15b.--Construction Materials--Continued

and soil name	map	reclamation mater:		Potential source	of	Potential source topsoil	of
	unit 	'		 Rating class and limiting features		 Rating class and limiting features	Value
UfhB:							
Urban land	 50 	 Not rated 	 	 Not rated 	 	 Not rated 	
Coloma	40	Poor:		Good		Poor:	
		Too sandy	0.00			Too sandy	0.00
		'	0.00	'			
		'	0.12				!
		organic matter					
	 	Too acid	0.88	 	 	 	
UfhC:							i
Urban land	50	Not rated	İ	Not rated	į	Not rated	į
Coloma	40	1		Good		Poor:	
		· -	0.00			Too sandy	0.00
		'	0.00			 	
	l I	Low content of organic matter	0.12	 	l l	 	1
			0.88				i
	İ	İ	İ		İ		İ
UfmA:		<u> </u>					
Urban land	50	Not rated		Not rated		Not rated	
Coupee	 40	 Fair:	 	 Poor:	 	 Good	1
		'			0.00		i
	İ	Water erosion	0.99		İ	İ	İ
UfrA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
orban rana	30						i
Del Rey	40	Poor:	i	Poor:	İ	Poor:	i
	İ	Too clayey	0.00	Depth to	0.00	Depth to	0.00
		Low content of	0.12	saturated zone		saturated zone	
		organic matter			0.00		0.00
		Carbonate content			0.87		
			0.88			 	
	 	water erosion	0.90 	 		 	
UftA:	i		İ		İ		i
Urban land	50	Not rated		Not rated		Not rated	
Flaton		 Fain.		 Canad		 Canad	
Elston	1 10	Carbonate content	 0 32	Good 	l l	Good	
		•	0.74	 		 	
	i	1	0.88		İ		i
	İ	organic matter	İ	İ	İ	İ	į
W.E3							
UfzA: Urban land	 50	 Not_rated	 	 Not rated	 	 Not rated	
							İ
Mishawaka	45	Poor:		Good	İ	Poor:	İ
		· -	0.00	'		'	0.00
		Low content of				Too sandy	0.00
		organic matter				Rock fragments	0.97
	I	Too acid	0.74	I		I	

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map	Potential source reclamation mater:		Potential source roadfill	of	Potential source topsoil	e of
	unit 	'	Value	 Rating class and limiting features	Value	 Rating class and limiting features	Value
UgaA:	 	 	 	 			
Urban land	50	Not rated		Not rated		Not rated	
Morocco	 40 	Too sandy Wind erosion Low content of	 0.00 0.00 0.12	 Poor: Depth to saturated zone	 0.00 	Depth to saturated zone	 0.00 0.00
	 	organic matter Too acid	0.54			Too acid 	0.98
UglA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Osolo	 40 	Wind erosion Too sandy Low content of organic matter	 0.00 0.04 0.12 	 Good 	 	 Fair: Too sandy 	 0.04
UgrA:	 	 	 	 	 	 	1
Urban land	50	Not rated	 	 Not rated 	 	 Not rated 	
Rensselaer	40 	Carbonate content		: -	0.00	Poor: Depth to saturated zone Rock fragments	0.00
UgsA:		 		 		 	
Urban land	50	Not rated	 	Not rated		Not rated	
Riddles	 25 	Low content of organic matter Carbonate content	0.12	Good 	 	Poor: Hard to reclaim -	0.00
			0.99				į
Oshtemo	 15 	Carbonate content	0.32	 Good 	 	 Good 	
		Too acid	0.97	 	 	 	
UgsB: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Riddles	 25 	Low content of organic matter Carbonate content Too acid	 0.12 0.46 0.88 0.99	 Good 	 	 Poor: Hard to reclaim 	 0.00
Oshtemo	 15 	Wind erosion Carbonate content Low content of organic matter	0.00	 Good 	 	 Good 	

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater		Potential source roadfill	of	Potential source topsoil	e of
	 	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UgvA: Urban land	 50	 Not rated 		 Not rated 	 	 Not rated 	
Tyner	40	Poor:		Good		Poor:	i
	ĺ	Too sandy	0.00	ĺ	İ	Too sandy	0.00
		Wind erosion	0.00				
		Low content of	0.12				
		organic matter					
		Too acid	0.88				
UgvB:	l I	 		 		 	
Urban land	50	 Not rated		 Not rated		 Not rated	İ
	Ì		i		i		İ
Tyner	40	Poor:	İ	Good	İ	Poor:	İ
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		•	0.12				
		organic matter					
		Too acid	0.88			 	
UgvC:		 		 	I I	 	
Urban land	50	 Not rated	į	Not rated		 Not rated	
Tyner	40	Poor:		Good	1	Poor:	
•	i	Too sandy	0.00	İ	i	Too sandy	0.00
	İ	Wind erosion	0.00		İ	İ	i
		Low content of	0.12				
		organic matter					
		Too acid	0.88				
UgvD:	 	 		 	1	 	
Urban land	50	 Not rated		 Not rated		 Not rated	
	İ	İ	İ	İ	İ	İ	į
Tyner	40	Poor:		Good		Poor:	
			0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.04
		•	0.12	1		1	
	 	organic matter Too acid	0.88	 	1	 	
	İ						
UhmA:	İ	į	İ	į	i	İ	İ
Urban land	50 	Not rated		Not rated		Not rated	
Hillsdale	40	Fair:	i	Good	i	Good	i
		Too acid	0.68				
		Low content of	0.88				
		organic matter					
UhmB:	I I	 		 		 	1
Urban land	50	Not rated		 Not rated		 Not rated	
Hillsdale	40	:		Good		Good	
	1	•	0.68		1	 	1
	I I	Low content of organic matter	0.88	 	I	 	1
	1	organic matter	1	I .	1	!	1

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater:		Potential source roadfill 	of	 Potential source topsoil 	of
	 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UhoC: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Hillsdale	30	'	'	Good		Good	
		'	0.68	 		 -	
	 	Low content of organic matter	0.88 	 	 	 	
Oshtemo	 15	 Fair:	 	 Good		 Good	
521250m5		Carbonate content	0.32		<u> </u>		i
	İ		0.88		i		i
	İ	organic matter	İ		i		i
	į		0.97	İ	į	İ	į
UhoD:							
Urban land	50	Not rated		Not rated		Not rated	
Hillsdale	 30	 Fair:	 	 Good	 	 Fair:	I I
		'	0.68		i	Slope	0.04
	i		0.88	' 	i		1
	İ	organic matter	İ		İ	İ	į
Oshtemo	15	'		Good		Fair:	10.04
	 	Carbonate content Low content of	0.88	 	1	Slope	0.04
	l I	organic matter	0. 00	İ	 	İ	
	 		0.97	 	 	 	
UhpC:							
Urban land	50	Not rated	 	Not rated		Not rated	
Hillsdale	30	 Fair:		 Good		 Good	
	İ	Too acid	0.68	İ	İ	İ	İ
		Low content of	0.88				
		organic matter					
Tracy	 15	 Fair:	 	 Good	 	 Fair:	1
iracy	1 13	'	0.20	6000	1	Too acid	0.76
	i I		0.88	 			0.94
	İ	organic matter		' 			0.99
	ļ						
UhpD:							
Urban land	50 	Not rated 	 	Not rated	 	Not rated	
Hillsdale	30	 Fair:		 Good		 Fair:	
		Too acid	0.68			Slope	0.04
		Low content of	0.88				
	ļ	organic matter					ļ
Tracy	 15	 Fair:	 	 Good	 	 Fair:	1
11acy	13		0.20		I I	'	0.04
	I I	'	0.88	1 	I I		0.76
	İ	organic matter		! 		'	0.94
	İ		İ		İ		0.99
	İ	İ	İ	İ	İ	i	İ

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	reclamation mater:		Potential source	of	Potential source topsoil	of
	unit 	'	Value	Rating class and limiting features	Value	 Rating class and limiting features	Value
UhwA:		l	 	 		 	
Urban land	50	 Not rated 	 	 Not rated 		 Not rated 	
Martinsville	40 	Carbonate content Too acid Low content of organic matter		Fair: Low strength 	 0.22 	Fair: Rock fragments 	0.97
UhwB:	į			' 	İ	<u> </u>	i
Urban land	50	Not rated		Not rated		Not rated	
Martinsville	 40 	Carbonate content Too acid Low content of organic matter		 Fair: Low strength 	 0.22 	 Fair: Rock fragments 	 0.97
UhwC:	İ					 	i
Urban land	50	Not rated		Not rated		Not rated	
Martinsville	40 	Carbonate content Too acid Low content of organic matter		 Fair: Low strength 	 0.22 	 Fair: Rock fragments 	0.97
UkaA:	1		 				
Urban land	50	Not rated		Not rated		Not rated	
Maumee	40 	Wind erosion Too sandy	0.00 0.22 0.50	· -	 0.00 	 Poor: Depth to saturated zone Too sandy	0.00
UkeA:	İ						
Urban land	50	Not rated		Not rated		Not rated	
Milford	40 	Too clayey	0.00	saturated zone Low strength	0.00	saturated zone Too clayey	0.00
UkxA:	İ				İ		
Urban land	50	Not rated	 	Not rated		Not rated	
Oshtemo		Carbonate content Low content of organic matter	0.32	 Good 	 	 Good 	
		Too acid	0.97				

Table 15b.--Construction Materials--Continued

and soil name	of			Potential source	of	Potential source	e of
	map					1	
	unit 	'	Value	Rating class and limiting features	:	Rating class and limiting features	Valu
	<u> </u>				1		
JkxB:	İ	<u> </u>		<u> </u>	İ		i
Urban land	50	Not rated		Not rated		Not rated	İ
Oshtemo	40	 Fair:		 Good		 Good	
		Carbonate content	0.32				
		Low content of	0.88				
		organic matter					
		Too acid	0.97			 	
UkxC:		 		 	 	 	
Urban land	50	Not rated		Not rated		Not rated	į
Oshtemo	 40	 Fair•		 Good	 	 Good	
	-0	Carbonate content	0.32				Í
	i		0.88	 	İ		i
	i	organic matter	i	İ	i	İ	i
	İ	Too acid	0.97		İ		1
UmfB:		 	 	 	 	 	
Urban land	50	Not rated		Not rated		Not rated	į
Riddles	25	 Fair:	 	 Good	 	 Poor:	
112 442 05	23		0.12		İ		0.00
	i	organic matter		 	İ		
	i	Carbonate content	0.46	İ	i	İ	i
	ĺ	Too acid	0.88	İ	İ		İ
		Water erosion	0.99				!
Metea	 15	Poor:	 	 Good	 	 Fair:	
	ĺ	'	0.00		i	Too sandy	0.14
	i		0.12	İ	i		i
	İ	organic matter	į	İ	İ		i
	ĺ	Too sandy	0.14	İ	İ		İ
		Too acid	0.84				
		Carbonate content	0.92				
UmfC:	l	 		 	 	 	
Urban land	50	Not rated	į	Not rated		Not rated	
Riddles	25	 Fair:	 	 Good	 	 Poor:	
	i	'	0.12	İ	i	Hard to reclaim	0.00
	į	organic matter	į	İ	İ		į
		Carbonate content	0.46				
		Too acid	0.88				
		Water erosion	0.99				
Metea	15	Poor:	 	 Good		 Fair:	
		'	0.00	•		Too sandy	0.14
		Low content of	0.12				
		organic matter					
			0.14	•			
		'	0.84				
	1	Carbonate content	0.92	[

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	reclamation mater		Potential source	of	Potential source	e of
	unit	İ		İ		<u> </u>	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UmfD:							
Urban land	50	 Not rated 	 	 Not rated 		 Not rated 	
Riddles	25	 Fair:		 Good		 Poor:	
	į Į	organic matter	0.12	 	į Į	Hard to reclaim	0.00
		Carbonate content Too acid	0.46	 		l I	
		!	0.99			 	
Metea	15	 Poor:	 	 Good		 Fair:	
	ĺ	Wind erosion	0.00	ĺ	İ	Slope	0.04
			0.12			Too sandy	0.14
		organic matter Too sandy	 0.14	 		 	
	i	· -	0.84				
	į	Carbonate content			į		
UmpA:	 	 	 	 		 	
Urban land	50	Not rated		 Not rated	<u> </u>	 Not rated	
Schoolcraft	40	 Fair:	i	 Good		 Good	
		Low content of	0.12				
		organic matter Too acid	 0.68	 		 	
	1	100 acid		 		 	
UmuA:	Ì	İ	İ	İ	İ	İ	İ
Urban land	50	Not rated		Not rated		Not rated	
Southwest	40	 Fair:		Poor:		Poor:	
		Water erosion	0.99	Depth to	0.00	Depth to	0.00
				saturated zone		saturated zone	
		 	 	Low strength Shrink-swell	0.00 0.99	 	
UmwA:	1	 		 		 	
Urban land	50	 Not rated	i	 Not rated		Not rated	
Tracy	40	Fair: Too acid	0.20	Good		Fair: Too acid	0.76
		Low content of	0.88	 		Rock fragments	0.76
	į	organic matter	į		į	Hard to reclaim	0.99
UmwB:	 	 	 	 		 	
Urban land	50	Not rated	į	Not rated	į	Not rated	
Tracy	40	 Fair:		 Good		 Fair:	
			0.20	[Too acid	0.76
			0.88			Rock fragments	0.94
	1	organic matter	 	 		Hard to reclaim	0.99
UmwC:	į	į	į	į	į		
Urban land	50 	Not rated 	 	Not rated 		Not rated 	
Tracy	40	Fair:	ĺ	Good	İ	Fair:	İ
			0.20			Too acid	0.76
	1		0.88			Rock fragments	0.94
	1	organic matter	I I] 	I I	Hard to reclaim	0.99

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map	reclamation mater		Potential source	of	Potential source	of
	unit 	'	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UmwD: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Tracy	40 	Too acid	 0.20 0.88 	 Good 	 	 Fair: Slope Too acid Rock fragments Hard to reclaim	 0.04 0.76 0.94 0.99
UmxA: Urban land	50	 Not rated	 	 Not rated	 	 Not rated	
Troxel	40	!		 Fair: Low strength 	0.22	 Good 	
UnoA: Urban land	 50	 Not rated 	 	 Not rated 	 	 Not rated 	
Whitaker	40 	Carbonate content Too acid			 0.00 	Poor: Depth to saturated zone 	 0.00
UnqB: Urban land	50	 Not rated	 	 Not rated		 Not rated	
Williamstown	25 	Carbonate content Low content of organic matter Droughty Too acid		Depth to saturated zone Shrink-swell	 0.00 0.53 0.95	saturated zone	 0.53 0.84
Crosier	 15 	Low content of organic matter Carbonate content Too acid	0.50	saturated zone	 0.00 0.00 0.99	saturated zone	 0.00 0.99
UntA: Urban land	 50	 Not rated	 	 Not rated	 	 Not rated	
Wunabuna, drained	 40 	 Fair: Water erosion 		 Poor: Depth to saturated zone		 Poor: Depth to saturated zone	 0.00
Usl: Udorthents, rubbish-	100	 Not rated	 	 Not rated		 Not rated	
W: Water	100	 Not rated	 	 Not rated		 Not rated	
WcnAI: Waterford	 80 	Low content of organic matter	0.88	saturated zone		saturated zone	 0.00 0.32

Table 15b.--Construction Materials--Continued

and soil name	Pct. of map unit	reclamation mater		Potential source roadfill	of	Potential source topsoil	e of
	 	'		Rating class and limiting features		Rating class and limiting features	Value
W3							
WoaA: Williamstown	 85	 Fair:	 	 Poor:	l	 Fair:	I
		Carbonate content		•	0.00	•	0.53
	i	Low content of			0.53	: -	i
	ĺ	organic matter	ĺ	saturated zone	İ	Hard to reclaim	0.84
		Droughty	0.97	Shrink-swell	0.95		
		'	0.97				
		Water erosion	0.99				
WoaB2:	l I	 	 	 		 	
Williamstown	85	 Fair:		Poor:		 Fair:	i
	i	Carbonate content			0.00	:	0.53
	ĺ	Low content of	0.88	Depth to	0.53	saturated zone	İ
		organic matter		saturated zone		Hard to reclaim	0.84
		Droughty	0.95	Shrink-swell	0.95		
			0.97				
		Water erosion	0.99				
WoaC2:	l I	 	 	 	1	 	
Williamstown	80	 Fair:		Poor:		 Fair:	i
	İ	Carbonate content	0.54	Low strength	0.00	Depth to	0.53
	ĺ	Low content of	0.88	Depth to	0.53	saturated zone	İ
		organic matter		saturated zone		Hard to reclaim	0.84
			0.95		0.95		
		'	0.97				!
		Water erosion	0.99			 	
WobB:						 	
Williamstown	50	Fair:	İ	Poor:	į	Fair:	į
		Carbonate content	0.54	Low strength	0.00	Depth to	0.53
		Low content of	0.88	Depth to	0.53	•	
		organic matter				!	0.84
			0.97		0.95		
	1		0.97 0.99		l I	 	
		water erosion	0.33	 	I I	 	
Crosier	30	Fair:	İ	Poor:	i	Poor:	i
		Low content of	0.50	Depth to	0.00	Depth to	0.00
		organic matter		saturated zone		saturated zone	
		Carbonate content			'	Hard to reclaim	0.99
			0.97	Shrink-swell	0.99		
	l I	Water erosion 	0.99	 	l	 	1
WrxAN:	i					 	i
Wunabuna, drained	85	Fair:	İ	Poor:	į	Poor:	į
		Water erosion	0.99	Depth to	0.00	Depth to	0.00
				saturated zone		saturated zone	
WtbA:		 	 	 		 	1
Whitaker	 75	 Fair:	I 	 Poor:		 Poor:	1
		Carbonate content		•	'	1	0.00
	i		0.84		'	saturated zone	i
		Low content of	0.88				
	1	organic matter	I	I		I	1

Table 15b.--Construction Materials--Continued

Map symbol	Pct.	Potential source	of	Potential source	of	Potential source	of
and soil name	of	reclamation mater	ial	roadfill		topsoil	
	map						
	unit	l					
		Rating class and	Value	Rating class and	Value	Rating class and	Valu
		limiting features		limiting features		limiting features	
WujB:		 	 	 		 	
Williamstown	45	Fair:	İ	Poor:	İ	 Fair:	i
	ì	Carbonate content	0.54	Low strength	0.00	Depth to	0.53
	i	Low content of	0.88	Depth to	0.53	saturated zone	i
	İ	organic matter	İ	saturated zone	İ	Hard to reclaim	0.84
	ĺ	Droughty	0.97	Shrink-swell	0.95		ĺ
		Too acid	0.97				
		Water erosion	0.99				
Moon	40	 Poor:	 	 Fair:		 Poor:	
	i	Too sandy	0.00	Depth to	0.76	Too sandy	0.00
	İ	Wind erosion	0.00	saturated zone	İ	Depth to	0.76
	İ	Low content of	0.12	İ	İ	saturated zone	İ
	ĺ	organic matter	ĺ		Ì	Rock fragments	0.97
		Too acid	0.88				
		Carbonate content	0.92				1

Table 16.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated. The representative values for USDA texture and for Unified and AASHTO classifications are designated with an asterisk.)

			Classif	ication	Fragi	ments		rcentage		ng		
Map symbol	Depth	USDA texture						sieve n	umber		Liquid	
and soil name			Unified	AASHTO	>10 inches	3-10	 4	10	40	200	limit	ticity index
	In	1		AASHIO	Pct	Pct	** 	1	40 	1 200	Pct	Index
							 		! 			
AahAK:		i	İ	j	į	İ	İ	İ	į	İ	į	İ
Abscota	0-5	Loamy sand*	SM*	A-2-4*	0	0	1	95-100	'	15-30	0-0	NP
	5-14	Loamy sand*,	SM*	A-2-4*,	0	0	95-100	85-100	45-65	5-30	0-0	NP
		sand, loamy fine sand.		A-1, A-3								
	 14_60	Sand*, coarse	SM*, SP,	A-2-4*,	 0	l l 0	 85_100	 60-100	 35_55	0-15	0-0	 NP
	11 00	sand, gravelly	SP-SM	A-1, A-3			03 100	00 100	33 33	0 13	0 0	112
		sand.						İ		İ		İ
AatAN:			 			 	 	 	 			
Ackerman,		1	 	l I	i	 	 	i I	l I			l I
drained	 0-8	Muck*	 PT*	A-8*	0	l 0	100	100	100	100		
	8-14	Coprogenous	OL*	A-5*	0	0	95-100	95-100	85-100	75-96	40-50	2-8
		material*.	İ	į	į		İ	į	İ	İ	İ	İ
j	14-80	Fine sand*, very	SP-SM*, SM	A-2-4*	0	0	100	100	85-95	10-20	0-0	NP
		fine sand, loamy										
		sand.				 	 		 			
AbhAN:			 		 	 	 	l I	 	 	1	
Adrian, drained-	0-9	Muck*	PT*	A-8*	0	0	100	100	100	100	i	i
	9-34	Muck*	PT*	A-8*	0	0	100	100	100	100		
	34-80	Sand*, fine sand,	SP*, SM	A-2*, A-1,	0	0	80-100	60-100	30-80	0-35	0-0	NP
		gravelly loamy		A-3								
		sand.				l I	 	 	 	 		
AbhAU:					i	 		İ	 			
Adrian,												
undrained	0-34	Muck*	PT*	A-8*	0	0	100	100	100	100		
	34-80	Sand*, fine sand,	SP*, SM	A-2*, A-1,	0	0	80-100	60-100	30-80	0-35	0 - 0	NP
		gravelly loamy	!	A-3				[!			!
		sand.	l I		 	 	 	 	 	l I		
ApuAN:												
Antung, drained-	0-9	Muck*	PT*	A-8*	0	0	100	100	100	100		
	9-12	Muck*	PT*	A-8*	0	0	100	100	100	100		
	12-80		SP*, SM	A-1*, A-2,	0	0	80-100	60-100	30-80	0-35	0-14	NP
		sand, fine sand,		A-3	!							
		gravelly loamy										
		sand.	 		 	 	l I	l I	l I	l l	l	
AxvA:		İ	İ		İ			İ	İ	İ	i	İ
Auten	0-9	Loam*		A-4*, A-6	0	0	95-100	90-100	85-95	55-70	15-40	NP-15
			CL-ML									
	9-22	Clay loam*, loam,	CL*, SC	A-6*, A-7-6	0-1	0-1	95-100	90-100	75-95	45-80	25-50	12-30
	 22 00	sandy clay loam. Stratified loamy	 cm+ cp	 A-3*, A-2-4	0-1	 0-3	00 100	 55-98	140 00	0-20	0-0	 NP
	44-00 	sand to sand*.	SM*, SP,	A-3^, A-2-4	0-1	U-3 	 00-100	 35-26	- -0-00	0-20	0-0	NP
		Danie Co Sane".	DE - DM	I I	1	I I	l I	I I	I I	I I	1	I I

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	cation	Fragr	nents		rcentago sieve n		ng	 Liquid	 Plas-
and soil name					>10	3-10					limit	ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In	[Pct	Pct					Pct	
BaaA: Bainter	0-9	 Sandy loam*	 sm* sc	 A-4*, A-2-4	l l 0	l l 0	 95-100	 90-100	 70-90	25-40	15-25	 NP-10
Daineer		Janay 10am	SC-SM		"	,	55 100	50 100	70 30	23 10	13 23	111 11
	9-13	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-1
İ		İ	SC-SM	İ				ĺ	ĺ	İ	ĺ	ĺ
	13-31	Sandy loam*,	SM*, SC,	A-4*, A-2-4	0	0	80-100	75-95	30-80	15-40	14-27	NP-13
		coarse sandy	SC-SM									
	31_44	loam. Coarse sandy	SM*, GM, SC,	 \bar{\alpha} - 4 * \bar{\alpha} - 2 - 4	l I 0	 0-5	 55_05	 50-90	 25_80	15-50	114-40	 NP-1
	31-11	loam*, sandy	SC-SM	A-4", A-2-4	0	0-3	55-55	30-30	23-00	13-30		NF-1
		loam, sandy clay		i	i		İ	İ	İ	i	i	i
İ		loam, gravelly	İ	İ	i		İ	İ	İ	İ	İ	į
		coarse sandy										
		loam.										
	44-54	Sandy clay loam*	CL*, CL-ML,	A-6*,	0	0	60-98	50-90	30-85	15-65	20-60	5-30
		 	SC, SC-SM	A-2-4, A-2-6, A-4			 	l I	l I	1	1	1
	54-80	Coarse sand*,	SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-90	15-40	0-10	0-0	NP
j		sand, gravelly	SP-SM, SW	A-1-B	i		İ	İ	į	į	į	į
		coarse sand.										
_												
BaaB: Bainter	0-9	 Sandy loam*	 cm* cc	A-4*, A-2-4	l I 0	l l 0	 95_100	 90-100	 70-90	25_40	15-25	 NP-10
Baincer	0-3	Sandy IOam	SC-SM	A-4", A-2-4	0	0	55-100	90-100 	70-30 	25-40	13-25	NF-10
	9-13	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-1
İ		İ	SC-SM	İ				ĺ	ĺ	İ	İ	ĺ
	13-31	Sandy loam*,	SM*, SC,	A-4*, A-2-4	0	0	80-100	75-95	30-80	15-40	14-27	NP-13
		coarse sandy	SC-SM									
	31_44	loam. Coarse sandy	SM*, GM, SC,	 \bar{\alpha} - 4 * \bar{\alpha} - 2 - 4	l I 0	 0-5	 55_05	 50-90	 25_80	15-50	114-40	 NP-18
	31-44	loam*, sandy	SC-SM	A-4", A-2-4	0	U-5	33-33	30-30	23-80 	1		NF-10
		loam, sandy clay		i				İ	İ	i	i	i
İ		loam, gravelly	İ	İ	i		İ	İ	İ	İ	İ	İ
		coarse sandy										
	44 -4	loam.										
	44-54	Sandy clay loam*	CL*, CL-ML, SC, SC-SM	A-6*, A-2-4,	0	0	60-98	50-90	30-85	15-65	20-60	5-30
		 	SC, SC-SM	A-2-4,			 	 	l I			i
	54-80	Coarse sand*,	SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-90	15-40	0-10	0-0	NP
İ		sand, gravelly	SP-SM, SW	A-1-B				ĺ	ĺ	İ	ĺ	ĺ
		coarse sand.	!	ļ					ļ		1	
BaaC2:		1										
Bainter	0-5	 Sandy loam*	SM*, SC,	 A-4*, A-2-4	 0	 0	 95-100	 90-100	 70-90	25-40	15-25	 NP-10
		 	SC-SM						İ	İ	i	i
İ	5-13	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
		1	SC-SM									
	13-31		SM*, SC,	A-4*, A-2-4	0	0	80-100	75-95	30-80	15-40	14-27	NP-13
		coarse sandy	SC-SM		l I		l I	l I	l I	1	1	
	31-44		SM*, GM, SC,	A-4*, A-2-4	l 0	l 0	 55-95	50-90	25-80	15-50	14-40	 NP-18
j		loam*, sandy	SC-SM	i	i		İ	İ	į	į	i	į
		loam, sandy clay										
		loam, gravelly										
		coarse sandy	1		l		 	 	 		1	
	44-54	loam. Sandy clay loam*	CL*, CTMT.	A-6*,	l l 0	l l 0	 60-98	 50-90	 30-85	 15-65	20-60	5-3
			SC, SC-SM	A-2-4,	İ	İ						, , ,
		İ	İ	A-2-6, A-4	i			İ	İ	į	İ	i
İ	54-80		SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-85	15-40	0-10	0-0	NP
		sand, gravelly	SP-SM, SW	A-1-B								
		coarse sand.										

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classifi	cation	Fragi	ments		rcentage sieve n		ng	 Liquid	 Plas-
and soil name			Unified	AASHTO	>10	3-10		10	40	200	limit	ticity
	In	1	Unified	AASHIU	Pct	Pct	4	1 10	1 40	1 200	Pct	Index
			1	 	100	100	 	 	 	l I		
BbmA:	i		i	İ	İ	į	i	İ	i	i	i	İ
Baugo	0-11	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	95-100	90-100	75-90	23-40	NP-17
	11-29	Silty clay loam*,	CL*, CL-ML	A-6*, A-4,	0	0	95-100	90-100	80-100	55-90	23-50	4-31
		clay loam.		A-7-6								
	29-36	Silt loam*, loam, sandy loam.	CL*, ML, SC, SM	A-6*, A-2-4,	0	0	95-100	90-100	75-100	25-100	14-40	NP-18
	 	sandy loam:	5M	A-2-6, A-4	 	 	 	 	 	i I	İ	l I
	36-56	Sand*, loamy	SM*, SP,	A-2-4*,	0	0-5	85-100	70-100	30-85	0-25	0-0	NP
	İ	sand, gravelly	SP-SM	A-1-B, A-3	İ	İ	İ	İ	İ	İ	İ	İ
		sand.	1									
	56-80	Loam*, fine sandy		A-4*, A-6	0-1	0-3	90-100	85-100	65-90	40-70	15-30	NP-15
		loam.	ML, SC									
BmgA:	l I	1	 	 	l I	l I	 	l I	 	 	l I	l I
Blount	 0-7	Silt loam*	CL*	 A-6*, A-4	 0	0	95-100	95-100	90-100	80-95	25-40	 8-20
		Clay loam*,		A-7*, A-6	0-1		95-100					5-35
		silty clay loam,	İ	ĺ			ĺ	ĺ	ĺ	ĺ		ĺ
		silty clay.	1									
	23-42		CL*, CH, MH,	A-6*, A-7	0-1	0-5	95-100	90-100	80-90	70-90	35-55	10-30
	 42_80	silty clay loam. Clay loam*,		 A-6*, A-7	 0-1	 0-10	 90-100	 90_100	 80_100	 70-90	30-45	 10-25
	42-60	silty clay loam.		A-0", A-7	U-1	0-10 	30-100	90-100 	80-100	70-30 	30-43	10-23
	i		i		İ	İ	<u>.</u>	İ	i	i	İ	İ
BshA:	İ	İ	İ	İ	İ	İ	į	İ	İ	İ	į	İ
Brady	0-9	Sandy loam*		A-4*, A-1,	0	0-5	95-100	75-100	45-85	20-55	0-25	NP-7
			ML, SC-SM	A-2								
	9-37	Sandy loam*,	SM*, CL, ML,	A-4*, A-6, A-1, A-2	0	0-5	85-100	60-100	35-90	20-55	15-35	NP-15
	l I	sandy clay loam, gravelly sandy	50	A-1, A-2 	 	 	 	 	l I	 		l I
	İ	loam.	i	! 	! 			 	İ	İ		i I
	37-56	Loamy sand*,	SM*, SC,	A-2-4*,	0	0-5	95-100	75-100	35-70	10-40	0-30	NP-10
		sandy loam.	SC-SM, SP-SM	A-1, A-2,								
				A-4								
	56-80			A-1*, A-2-4, A-3	0	0-5	40-95	30-85	20-60	0-10	0-0	NP
	l I	gravel.	GP-GM, SP	A-2-4, A-3	 	l I	 	l I	l I	I I	l	l I
	i		i		İ	İ	<u>.</u>	İ	i	i	İ	İ
BsxA:			İ	ĺ			ĺ	ĺ	ĺ	ĺ		ĺ
Brems		Loamy sand*		A-2-4*	0	0	'	85-100			0-0	NP
	9-27			A-2-4*	0	0	'	85-100			0-0	NP
	21-12	Sand*, fine sand, loamy sand.	SP*, SP-SM,	A-2-4*, A-3	0 	0 	100	85-100	55-95	0-25	0-0	NP
	 72-80	Sand*, fine sand,		A-2-4*, A-3	l 0	0	100	85-100	 55-95	0-25	0-0	 NP
	İ	loamy sand.	SM	İ	İ	İ	i	İ	İ	İ	i	İ
			I									
Morocco		Loamy sand*		A-2-4*	0	0	100		75-95		0-0	NP
	9-60	Sand*, fine sand, loamy fine sand,	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
	l I	loamy sand.		 	l I	l I	 	l I	l I	I I	1	l I
	60-80	Sand*, fine sand.	SP-SM*, SM	 A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	 NP
		İ	i	İ	İ	İ	İ	İ	İ	İ	İ	
BteA:			I									
Brems		Loamy sand*		A-2-4*	0	0	'	85-100			0 - 0	NP
		Loamy sand*		A-2-4*	0	0	100	'	60-100		0-0	NP
	21-72 	Sand*, fine sand, loamy sand.	SP*, SP-SM, SM	A-2-4*, A-3	0 	0 	100	 02-T00	55-95	U-25 	0-0	NP
	 72-80	Sand*, fine sand,		 A-2-4*, A-3	l 0	 0	100	 85-100	 55-95	0-25	0-0	 NP
		loamy sand.	SM	, , <u>, </u>	, J		====					
			İ	ĺ	l	İ	İ	İ	i	İ	İ	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif:	ication	Fragi	ments	'	rcentag sieve n	e passi: umber	ng	 Liquid	 Plas-
and soil name		1	Unified	AASHTO	>10	3-10	 4	10	40	200	limit	ticity
	In	1		AASHIO	Pct	Pct	** 	1	40	200	Pct	Index
		İ					! 	İ				i
BuuA:		İ	ĺ			ĺ		ĺ	İ	ĺ	ĺ	ĺ
Brookston	0-9	Loam*	CL*, CL-ML,	A-4*, A-6	0	0	95-100	90-100	85-95	55-75	20-40	NP-17
	9-48	Clay loam*, silty	1	A-6*, A-7-6	0	0	 98-100	 85-100	75-100	 55-90	25-50	12-33
ļ	40.60	clay loam, loam.							 65-95			
	48-68	Loam*, fine sandy loam.	ML, SC	A-4*, A-6 	0-1	U-3 	90-100	 	65-95	40-70	15-40	NP-22
ļ	68-80	Loam*, fine sandy		A-4*, A-6	0-1	0-3	90-100	85-100	65-90	40-70	15-30	NP-15
		loam.	ML, CL, SC 		l l	 	 	 	 	 		
CmbAI:		İ	İ	İ	i	İ	İ	İ	İ	İ	i	i
Cohoctah	0-13	Loam*	CL*, CL-ML	A-4*	0	0	100	100	85-100	25-80	20-40	5-25
	13-56	Fine sandy loam*,		A-2-4*, A-4	0	0	100	100	85-100	25-80	10-40	NP-25
		loam, sandy	CL-ML, CL			 	 	 		 		
	56-80		SP*, SP-SM,	A-2*, A-3,	0	0	 85-100	 75-98	35-85	0-25	0-0	NP
ĺ		sand, loamy	SM	A-2-4		ĺ	ĺ	ĺ	ĺ	ĺ	ĺ	ĺ
		sand.										
CnbA:		l I	 		l I	 	 	 	 	 		
Coloma	0-12	Sand*	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-70	2-15	0-14	NP
	10 47		SP		0		75 100	75 100		 2-30	0-14	 NP
	12-47	Sand*, loamy sand.	SP-SM*, SM,	A-2*, A-3	0	U-5 	/5-100 	75-100 	50-75	2-30 	0-14	NP
į	47-80	Sand*, loamy	SP-SM*, SM,	A-2*, A-3,	0	0-5	75-100	75-100	50-100	2-40	0-14	NP
ļ		sand.	SP	A-4								
CnbB:			 		l	 	 	 	 	 	l I	
Coloma	0-12	Sand*	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-70	2-15	0-14	NP
	10 45		SP									
	12-47	Sand*, loamy sand.	SP-SM*, SM,	A-2*, A-3	0 	0-5 	75-100 	75-100 	50-75	2-30	0-14	NP
i	47-80	Sand*, loamy	SP-SM*, SM,	A-2*, A-3,	0	0-5	75-100	75-100	50-100	2-40	0-14	NP
		sand.	SP	A-4								
CnbC:			 		l l	 	 	 	 	 		
Coloma	0-12	Sand*	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-70	2-15	0-14	NP
	10 47		SP									
	12-4/	Sand*, loamy sand.	SP-SM*, SM,	A-2*, A-3	0	U-5 	/5-100 	75-100 	50-75	2-30	0-14	NP
į	47-80	Sand*, loamy	SP-SM*, SM,	A-2*, A-3,	0	0-5	75-100	75-100	50-100	2-40	0-14	NP
		sand.	SP	A-4			 	 		 		
CnbD:		 	 		 	 	 	 	 	 	1	
Coloma	0-12	Sand*	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-70	2-15	0-14	NP
I	10 47	 Sand*, loamy	SP SP-SM*, SM,	 A-2*, A-3			75 100	 75-100		2-30	0-14	 NP
	12-47	sand.	SP-SM*, SM,	A-2*, A-3	0	0-5	/3-100 	/5-100 	50-75	2-30 	0-14	NP
į	47-80	Sand*, loamy	SP-SM*, SM,	A-2*, A-3,	0	0-5	75-100	75-100	50-100	2-40	0-14	NP
		sand.	SP	A-4								
CrrA:		 	 			 	 	 		 		
Coupee		Silt loam*		A-6*, A-4	0	0	100	'	95-100		26-39	2-15
I		Clay loam*, loam		A-6*, A-7	0		'	1	85-95		20-50	5-30
	33-52	Stratified loamy sand to sand to	SM*, SP-SM	A-3*, A-2-4	0	0-1	85-100	75-98	35-85	0-25	0-0	NP
I		coarse sand*.	 				 	 		 		
į	52-98		SW-SM*, SW	A-1-a*	0-2	0-5	45-100	25-98	10-85	0-15	0-0	NP
		coarse sand*,										
		fine sand, sand.	I	1	I	1	I	I	1	I	1	1

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classif	ication	Fragn	ments		rcentago sieve n		ng	 Liquid	 Plas-
and soil name			T-451 3		>10	3-10	İ			1 000	limit	ticity
	l In	1	Unified	AASHTO	inches Pct	inches Pct	4	10	40	200	Pct	index
	111		 		PCC	PCC	 	 	l I	 	PCC	
CvdA:	i	İ	İ	i	İ	i	İ	İ	į	i	i	İ
Crosier	0-11	Loam*		A-4*, A-6	0-1	0-1	95-100	90-100	85-95	55-90	20-40	NP-17
	 11_30	Clay loam*, loam,	ML	A-6*, A-7-6	 0-1	 0-1	 95_100	 90-100	 75-95	 45_80	25-50	 12-30
	11-30	sandy clay loam.		R=0", R=7=0	0-1	0-1					23-30	12-30
	30-38	Loam*, sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-100	65-95	40-70	15-40	NP-22
		loam, fine sandy	ML, SC									
	 38-80	loam.	CL-ML*, CL,	 A-4*, A-6	 0-1	 0-3	 90-100	 85-100	 65-90	 40-70	15-30	 NP-15
		loam, fine sandy			0 =							
	İ	loam.	ĺ	İ	ĺ	İ	İ	İ	ĺ	Ì	İ	ĺ
a 15												
CvdB: Crosier	 0-11	 Loam*	CL-ML*, CL,	A-4*, A-6	 0-1	 0-1	 95-100	 90-100	 85-95	 55-90	20-40	 NP-17
			ML									
	11-30	Clay loam*, loam,	CL*, SC	A-6*, A-7-6	0-1	0-1	95-100	90-100	75-95	45-80	25-50	12-30
	20.20	sandy clay loam.	 GT_MT + GT	12 4	 0-1			 85-100		140.70	115 40	 NP-22
	30-38 	loam*, sandy	CL-ML*, CL,	A-4*, A-6	0-1	U-3 	90-100	 	65-95 	40-70	15-40	NP-22
	i	loam.			İ	i	İ	İ	İ	İ	i	
	38-80	Loam*, sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-100	65-90	40-70	15-30	NP-15
		loam, fine sandy	ML, SC									
	l I	loam.	 		l I	l I	 	 	l I	l I	1	l I
CwkA:			İ				! 	İ	İ		i	
Crumstown	'	Fine sandy loam*		A-2-4*	0		'	80-100			0-0	NP
	9-19	Fine sandy loam*,	SC-SM*, SC,	A-2-4*, A-4	0	0-5	80-100	75-98	55-85	25-55	0-30	NP-10
	l I	sandy loam, gravelly sandy	SM		 	 	 	 	l I	 	Ì	
	i	loam.	İ	i	İ	i	İ	İ	į	i	i	İ
	19-45	Loamy sand*, fine		A-2-4*, A-3	0	0	90-100	85-100	55-85	0-25	0-0	NP
	 45_100	sand, sand. Fine sand*, sand,	SW-SM	A-2-4*, A-3	 0	 0	 100	 98-100	 70-95	 0-25	0-0	 NP
		loamy fine sand,		A-2-4", A-3	U	0	100		70-33	0-23	0-0	142
	i	loamy sand.	İ	i	İ	i	İ	İ	İ	į	į	İ
			ļ.						!	ļ	ļ	
CwkB: Crumstown	 0-9	 Fine sandy loam*	 sm* sp-sm	A-2-4*	 0	 0	 80-100	 80-100	 55-80	 10-25	0-0	 NP
CI ding cowii	'	Fine sandy loam*,		A-2-4*, A-4			'	75-98			0-30	NP-10
		sandy loam,	SM	İ				ĺ	l		İ	
		gravelly sandy										
	 19-45	loam. Loamy sand*, fine	SP-SM*. SM.	 A-2-4*, A-3	l I 0	l l 0	 90-100	 85-100	 55-85	0-25	0-0	 NP
		sand, sand.	SW-SM									
	45-100	Fine sand*, sand,		A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
	l	loamy fine sand, loamy sand.			l I	l	l I	 	 			
	l I	Toally sand.	 		 	l I	 	 	l I	l I		l I
DcrA:	i	İ	İ	İ		İ			İ	İ	i	
Del Rey	'	Silty clay loam*		A-6*, A-7	0	0		95-100				10-25
	9-33 	Silty clay*, silty clay loam.	CH*, CL	A-7*	0 	0 	95-100 	95-100	90-100 	85-95 	40-55 	20-30
	33-90	Silty Clay loam*,		A-6*, A-7	 0	0	95-100	 95-100	 90-100	70-95	30-45	 10-25
		silt loam.	İ	İ			İ	İ	į	İ	İ	İ
			Į.								[
EchAN: Edwards, drained	 0-9	 Muck*	 DT*	A-8*	 0	 0	 100	 100	 100	 100		
Edwards, drained		Muck*		A-8*	0 0	0 0	100	100	100	100		
	'	Marly material*	ML*	A-5*	0	0	100	'	90-99			

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	cation	Fragi	ments		rcentag sieve n	e passi umber	ng	 Liquid	 Plas-
and soil name					>10	3-10	ļ				limit	ticity
	In	1	Unified	AASHTO	inches Pct	inches Pct	4	10	40	200	Pct	index
	-111						 	 		İ		İ
EchAU:		İ	ĺ				ĺ		ĺ		İ	İ
Edwards,	0.24	 Muck*	 Dur+	A-8*	 0	 0	 100	 100	 100	 100		
undrained		'	ML*	A-5*	0	0	100	100	90-99			
i		İ	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
EcrAN:						 		 	[
Edselton, drained	0-10	 Muck*	 PT*	 A-8*	l 0	l 0	100	 100	100	100		
i		Muck*		A-8*	0	0	100	100	100	100	j	i
			ML*	A-5*	0	0	100	'	90-99			
	48-80	Sand*, fine sand, gravelly loamy	SP*, SM, PT 	A-2*, A-8, A-3, A-1	0 	0 	80-100	60-100 	30-80 	0-35	0-0	NP
		sand.					İ				İ	
											ļ	
EcrAU: Edselton,		 	 		 	l I	l I	 	l I	l I	l I	1
	0-21	Muck*	PT*	A-8*	0	0	100	100	100	100		
			ML*	A-5*	0	0	100	'	90-99			
	48-80	Sand*, fine sand, gravelly loamy	SP*, SM, PT	A-2*, A-8, A-3, A-1	0	0	80-100	60-100	30-80	0-35	0-0	NP
		sand.	 	A-3, A-1				 				
		į	ļ						ĺ			
Elston	0-20	 Sandy loam*	 sc-sm* sm	A-2-4*, A-4	 0	 0	 85-100	 85-100	 60-80	25-40	0-25	 NP-10
EIBCOII		Sandy loam*		A-4*, A-2-4	'	'	85-100	'				NP-10
į	34-72	Loamy sand*,	SM*, SP-SM	A-2-4*,	0-1	0-3	85-100	85-100	45-85	10-40	0-30	NP-10
	70.00	sandy loam.		A-1, A-2								
	72-80	Sand*, gravelly sand.	SP-SM*, SM	A-2-4*,	0-1 	U-3 	65-100 	50-98	12-80	0-15	0-0	NP
į		Ì	İ		İ	İ	İ	İ	İ	İ	į	i
GczA:	0 14	 Sandy loam*	 gg gw+ gg	 A-2-4*, A-4	 0	 0	 95-100	05 100			115 25	 NP-10
giiioid	0-14	Sandy IOam	SM	A-2-4", A-4	0	0		33-100		23-43	15-25	NF-10
i	14-32	Sandy loam*, fine	SC-SM*, SC,	A-2-4*	0	0	95-100	95-100	55-90	25-50	15-30	NP-10
	22 20	sandy loam.	SM SM*, SP,	A-2-4*,	 0	 0	 95-100	 05 100	140.05	0-25	0-0	 NP
	32-36	sand, loamy fine		A-1-B, A-3		0 		93-100		0-25	0-0	NF
į		sand.	İ		İ	İ	İ	İ	İ	İ	į	i
	38-80	Sand*, coarse	SM*, SP,	A-2-4*,	0	0	85-100	85-100	35-85	0-25	0-0	NP
		sand, loamy sand.	SP-SM	A-1-B, A-3	 	 	 	 	 		l I	
į		İ	İ		İ	İ	İ	İ	İ	İ	į	İ
GdnA:	0 14	 Sandy loam*	 ecew+ ec		 0		 95-100			25 45	110.25	 2-10
giiioid	0-14	Sandy IOam	SM	A-2-4", A-4	0	0		33-100		23-43	10-25	2-10
	14-32	Sandy loam*, fine		A-2-4*	0	0	95-100	95-100	55-90	25-50	15-30	NP-10
	32-38	sandy loam. Loamy sand*,	SM SM*, SP,	A-2-4*,	 0	 0	 95-100	 95-100	 40-95	0-25	0-0	 NP
	32 30	sand, loamy fine		A-1-B, A-3						0 23		
		sand.										
	38-80	Sand*, coarse sand, loamy	SM*, SP,	A-2-4*, A-1-B, A-3	0 	0 	85-100	85-100 	35-85 	0-25	0-0	NP
i		sand.										
77.51.3.V												
HfbAN: Henrietta,		[[
	0-12	 Muck*	 PT*	A-8*	0	0	100	100	100	100		
į	12-43	Stratified loamy		A-4*, A-2-4	0	0	95-100	75-100	70-100	30-85	15-25	2-10
		fine sand to silt loam*.	SM 		 	 	 	 	 		1	
	43-60	Stratified loamy	SC*, CL, ML,	A-4*, A-2-4	 0	 0	 95-100	 75-100	70-100	30-85	15-25	2-10
į		fine sand to	SM				İ			İ	İ	ĺ
		silt loam*.	I .	1	1	1	1		1	1		

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi	cation	Fragi			rcentage sieve n		ng	Liquid	
and soil name			 Unified	AASHTO	>10 inches	3-10	 4	10	40	200	limit	ticity index
	In	1	1	1	Pct	Pct	 	l	l		Pct	
į		İ	ĺ	İ	İ	ĺ	İ	İ	ĺ	İ	İ	İ
HfbAU:				1								
Henrietta,		1										
undrained		Muck*		A-8*	0 0	0 0	100	100 75-100	100	100	115 25	2-10
	12-43	Stratified loamy	SM	A-4*, A-2-4	U	U	95-100	/3-100 	70-100 	30-65	15-25	2-10
		silt loam*.				 	 	 	! 	i I	İ	i
İ	43-80	Stratified loamy	SC*, CL, ML,	A-4*, A-2-4	0	0	95-100	75-100	70-100	30-85	15-25	2-10
		fine sand to	SM									
		silt loam*.	!	ļ					!	!	!	!
HkkA: Hillsdale	0-8		 sm* sc	A-4*, A-2-4	 0	l I 0	 95-100	 90-100	 70-90	 25-40	15-25	 NP-10
milibuale	0-0	bandy loam	SC-SM	A-1", A-2-1	0	0	55-100		70-30 	23-40	13-23	MF-10
i	8-14	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	 NP-10
į		İ	SC-SM	İ	İ	ĺ	ĺ	İ	İ	İ	į	į
	14-44	Sandy loam*	SC-SM*, SC	A-4*, A-2-4	0	0	95-100	90-100	75-95	25-40	15-50	NP-30
	44-84	Sandy loam*		A-2-4*	0	0-1	90-100	75-98	55-85	25-40	15-25	NP-10
			SC-SM									
HkkB:		1	l I	I	 	l I	l I	l I	l I	l I		1
Hillsdale	0-8	Sandy loam*	SM*, SC,	 A-4*, A-2-4	0	l 0	 95-100	 90-100	 70-90	25-40	15-25	 NP-10
			SC-SM		İ							
į	8-14	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
			SC-SM									
		Sandy loam*		A-4*, A-2-4			'	90-100				NP-30
	44-84	Sandy loam*	SM*, SC, SC-SM	A-2-4*	0	0-1	90-100	75-98	55-85	25-40	15-25	NP-10
			SC-SM		l I	 	 	l I	l I	l I	I	
HknC2:				i	İ			 	i I	İ	i	i
Hillsdale	0-5	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
			SC-SM									
ļ	5-14	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
	14 44	Canda laamt	SC-SM	3 4 + 3 2 4		 0	 05 100				115 50	 NP-30
		Sandy loam*		A-4*, A-2-4 A-2-4*	0 0		'	90-100 75-98				NP-30 NP-10
	11 01	Janay Ioam	SC-SM			0 =	50 100	73 30		23 10	13 23	111 10
į			İ	i	İ	İ		İ	İ	İ	İ	i
Oshtemo	0-6	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
			SC-SM									
	6-14			A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		loamy sand, fine sandy loam.	SC, SM	A-4, A-6	l I	l I	 	l I	l I	l I		
	14-35		SC-SM*, CL,	A-2-4*,	l 0	l 0	 80-100	 80-95	 45-80	20-50	10-50	 NP-20
i			SC, SM	A-4, A-6	İ							
į		loam, sandy clay	İ	İ	İ	İ	İ	İ	į	į	į	į
		loam, gravelly										
		sandy clay loam,	!	ļ					!	!	!	!
	25 60	fine sandy loam.	 cm+				100	100		 15 25		375
l		Loamy sand* Stratified	SM* SP-SM*, SW,	A-2-4*	0 0-1	0 0-5	100 55-85	100 35-85	50-80 10-50		0-14	NP
	55-60	gravelly coarse			0-1	0-5	22 03					142
i		sand to coarse	İ	i	į	į		į	İ		į	i
į		sand to sand to		1					l			
I		gravelly sand*,	!	İ	[!		[
		very gravelly										1
		coarse sand.	Į.	1	I			!	!	!	1	1

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	nents		rcentage sieve n			 Liquid	 Plas-
and soil name			Unified	AASHTO		3-10 inches	 4	10	40	200		ticity
	In	<u> </u>	Ullified	AASHIO	Pct	Pct	*	10 	40	200	Pct	Index
		İ	i	i				! 		i		i
HknD2:			I									
Hillsdale	0-5	Sandy loam*	SM*, SC,	A-4*, A-2-4	0 	0 	95-100 	90-100 	70-90 	25-40	15-25 	NP-10
	5-14	Sandy loam*	SM*, SC,	A-4*, A-2-4	0 	0 	95-100 	90-100 	75-95 	20-50	15-25 	NP-10
I	14-44	Sandy loam*	SC-SM*, SC	A-4*, A-2-4	0	0	95-100	90-100	75-95	25-40	15-50	NP-30
	44-84	Sandy loam*	SM*, SC, SC-SM	A-2-4* 	0 	0-1 	90-100 	75-98 	55-85 	25-40	15-25	NP-10
Oshtemo	0-6	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	 95-100 	 90-100 	 70-90 	25-40	15-25	NP-10
	6-14	Sandy loam*, loamy sand, fine	SC-SM*, CL,	A-2-4*, A-4, A-6	0 	0 	80-100 	80-95 	45-80 	20-50	10-50 	NP-20
		sandy loam.	I									
	14-35		 	A-2-4*, A-4, A-6 	0 	0 	80-100 	80-95 	45-80 	20-50	10-50 	NP-20
	35-60	Loamy sand*		A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
			SP-SM*, SW,	A-1* 	0-1	'	55-85 	'			0-0 	NP
			1									
HkpC2:			!	!					!			!
Hillsdale		Sandy loam*	SC-SM	A-4*, A-2-4		ĺ	İ		İ	İ	15-25	İ
		Sandy loam*	SC-SM	A-4*, A-2-4		ĺ	İ	İ	İ	į	15-25	İ
		Sandy loam*		A-4*, A-2-4	0 0		95-100 90-100					NP-30
	44-84	Sandy loam*	SC-SM	A-2-4* 	U 	U-1 	90-100 	75-98 	55-85	25-40	15-25	NP-10
Tracy	0-5	Sandy loam*	SC-SM*, SM,	A-2-4*, A-4	 0 	 0 	 80-100 	 75-98 	 60-80 	25-40	0-25	NP-10
İ	5-47		SC-SM*, CL,	A-4*, A-6	0	0	 85-100 	75-98	 55-90 	25-60	10-40	NP-20
	47-60	Gravelly sandy clay loam*, gravelly loamy sand.	SC*, SC-SM, SM, SP-SM 	A-6*, A-4, A-2-4 	0 	0-1 	60-90 	50-75 	30-70 	10-60	0-40	NP-20
	60-86	Stratified loamy sand to gravelly sand*.		A-3*, A-1-B, A-2-4	0-1 	0-3 	 65-100 	 50-98 	 15-85 	0-25	0-0	NP
HkpD2:		İ	i	i						i	i	İ
Hillsdale	0-5	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	 0 	 95-100 	90-100	70-90	25-40	 15-25 	NP-10
	5-14	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
į	14-44	Sandy loam*	SC-SM*, SC	A-4*, A-2-4	0	0	95-100	90-100	75-95	25-40	15-50	NP-30
	44-84	Sandy loam*	SM*, SC,	A-2-4*	0 	0-1 	90-100 	75-98 	55-85	25-40	15-25 	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi		•	rcentage sieve n	e passin umber		 Liquid	
and soil name		Í I	Unified	AASHTO	>10 inches	3-10 inches	 4	10	40	200	limit 	ticity
	In			İ	Pct	Pct					Pct	l
HkpD2: Tracy	0-5	 Sandy loam*	 SC-SM* GM	 A-2-4*, A-4	 0	0	 80_100	 75_00	 60-80	 25_40	 0-25	 NP-10
Tracy	0-5	sandy loam*	SC-SM*, SM,	A-2-4*, A-4	U		80-100	/3-96 	60-60	25-40 	0-25	NP-10
	5-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	 0 	0	 85-100 	75-98 	 55-90 	25-60	10-40	NP-20
	47-60	Gravelly sandy clay loam*, gravelly loamy sand.	SC*, SC-SM, SM, SP-SM 	A-6*, A-4, A-2-4	0 	0-1	60-90 	50-75 	30-70 	10-60 	0-40	NP-20
	60-86	Stratified loamy sand to gravelly sand*.	•	A-3*, A-1-B, A-2-4	0-1 	0-3	 65-100 	 50-98 	 15-85 	0-25 	0-0 	NP
HtbAN:												İ
Houghton,			!								!	ļ
drained		Muck*	1	A-8*	0 0	0	100 100	100 100	100 100	100 100	 	
	3-00	Muck			0		100	100	100	100	 	
HtbAU:		İ	ĺ	İ	ĺ		ĺ	ĺ	İ	İ	İ	ĺ
Houghton, undrained	0.00	 Muck*	 									
undrained	0-80	Muck*	PT* 	A-8*	0 	0	100 	100 	100 	100 	 	
JaaAK:			İ		İ		İ	İ	İ	İ	İ	i
Jamestown		Silt loam*	•	A-4*, A-6	0	0	100	'		75-100		2-15
	11-33	Loam*, silt loam,	•	A-4*, A-6,	0	0	100	100	90-100	55-100	22-46	NP-24
	33-44	silty clay loam. Sandy loam*	•	A-7-6 A-2-4*, A-4	l I 0	0	 90-100	 85-100	 60-100	 25-45	 17-27	 NP-10
i			SC-SM				İ		İ	İ	İ	İ
	44-52	Loamy sand*, sand, fine sandy loam.	SM*, SP-SM 	A-2-4*, A-3, A-4	0 	0	90-100 	85-100 	55-100 	5-45 	0-0 	NP
	52-80	Loam*, fine sandy loam.	ML*, CL,	A-4*, A-6	0-1	0-3	 90-100 	 85-100 	 65-90 	 40-70 	 15-30 	 NP-15
MfaA:			 		 		 	 	 	 	 	
Martinsville	0-13	Loam*	CL*, CL-ML	A-4*	0	0	90-100	90-98	75-85	50-65	20-40	5-20
	13-35	Clay loam*, sandy clay loam.	CL-ML*, CL,	A-6*, A-4	0 	0	85-100	75-100 	60-95	40-75	20-60	5-30
	35-53	Sandy clay loam*, sandy loam,		A-6*, A-4	0	0-1	 85-100 	 75-100 	 60-95 	 40-60 	 10-60 	NP-20
	53-60	loam. Stratified sandy loam to loam to silt loam*.	•	 A-4*, A-2-4 	 0-1 	0-3	 90-100 	 85-100 	 55-100 	 0-100 	 0-40 	 NP-15
MfaB2:		 	 		 		 	 	 	 	 	l I
	0-5	Loam*	CL*, CL-ML	A-4*	0	0	90-100	90-98	75-85	50-65	20-40	5-20
	5-35	Clay loam*, sandy	CL-ML*, CL,	A-6*, A-4	0	0	85-100	75-100	60-95	40-75	20-60	5-30
	35-53	Sandy clay loam*, sandy loam,		 A-6*, A-4 	 0 	0-1	 85-100 	 75-100 	 60-95 	 40-60 	 10-60 	 NP-20
	53-60	loam. Stratified sandy loam to loam to	•	 A-4*, A-2-4 	 0-1 	0-3	 90-100 	 85-100 	 55-100 	 0-100 	 0-40 	 NP-15
		silt loam*.	 		 		 	 	 	 	 	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi	ication	Fragi	ments		rcentage sieve n	e passi: umber	ng	 Liquid	 Plas-
and soil name		 	Unified	AASHTO	>10 inches	3-10	 	10	40	200	limit	ticity
<u>_</u>	In				Pct	Pct	<u> </u>		<u></u>		Pct	
į		İ	İ	i i			İ	İ	İ	İ	İ	İ
MfaC2:		İ	ĺ	j			ĺ		ĺ		ĺ	
Martinsville	0-5	Loam*	CL*, CL-ML	A-4*	0	0	90-100	90-98	75-85	50-65	20-40	5-20
	5-35	Clay loam*, sandy		A-6*, A-4	0	0	85-100	75-100	60-95	40-75	20-60	5-30
ļ		clay loam.	SC					 				
	35-53	Sandy clay loam*, sandy loam, loam.	CL-ML*, CL, SC, SC-SM	A-6*, A-4 	0	0-1	85-100 	75-100 	60-95 	40-60 	10-60 	NP-20
 	53-60	Stratified sandy	CL*, CL-ML,	A-4*, A-2-4	0-1	0-3	90-100	 85-100	 55-100	 0-100	0-40	 NP-15
		loam to loam to silt loam*.	SM, SP-SM				 		 			
MfrAN:		 	 				 	 	l I	 	l I	l I
Madaus, drained-	0-9	Muck*	PT*	A-8*	0	0	100	100	100	100		
į		Marly material*	ML*	A-5*	0	0	100	100	90-99	70-95	i	
ĺ	48-80	Sand*, fine sand,	SP-SM*, SP,	A-2-4*, A-3	0	0	95-100	80-100	50-90	3-20	0-0	NP
		loamy sand.	SM	!				l	!	l	[ļ.
MfrAU:		l I	l I				 	 	 	 	 	
Madaus,		 	 				 	 	! 	 	 	
undrained	0-9	Muck*	PT*	A-8*	0	0	100	100	100	100		
į	9-48	Marly material*	ML*	A-5*	0	0	100	100	90-99	70-95	i	
	48-80	Sand*, fine sand,	SP-SM*, SP,	A-2-4*, A-3	0	0	95-100	80-100	50-90	3-20	0-0	NP
ļ		loamy sand.	SM									
MgcA:		 	 				 	 	l I	 	l I	l I
Maumee	0-23	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	95-100	 90-100	 60-95	10-25	0-0	NP
İ		Sand*, loamy fine		A-2-4*, A-3	0	0	100	98-100		0-25	0-0	NP
į		sand, fine sand.	SM	j			İ		İ	İ	į	İ
	61-80	Sand*, coarse	SP*, SP-SM	A-2*, A-3,	0	0	100	95-100	40-70	0-25	0-0	NP
		sand, fine sand.		A-2-4					!		ļ	
 MgdAN:		 	 				 	 	l I	 	l I	l I
Martisco,		 	 				 	 	! 	 	 	
drained	0-12	Muck*	PT*	A-8*	0	0	100	100	100	100		
į	12-80	Marly material*	ML*	A-5*	0	0	100	100	90-99	70-95	j	i
!]	ļ.	[]					!		[ļ.
MhaA: Maumee	0 22	 Loamy fine sand*	 cm+	 A-2-4*	0	0	 100	 100	 90-100		 0-0	 NP
Mauniee		Fine sand*, sand,		A-2-4*, A-3	0	0	100	98-100	'	0-25	0-0	NP
ľ		loamy fine sand.										
į	61-80	Sand*, fine sand,	SP*, SP-SM	A-2*, A-3,	0	0	100	95-100	40-70	0-25	0-0	NP
		coarse sand.	[A-2-4							[
MhbA:		l I					 	 	 			
	0-23	Loamy fine sand*	 SM*	A-2-4*	0	0	100	100	 90-100	 20-35	0-0	 NP
		Fine sand*, sand,		A-2-4*, A-3	0	0	100	'	70-95		0-0	NP
į		loamy fine sand.					İ	İ	İ	İ	İ	İ
į	61-80	Sand*, fine sand,	SP*, SP-SM	A-2*, A-3,	0	0	100	95-100	40-70	0-25	0-0	NP
		coarse sand.	[A-2-4							[
Memb CO -		1										
MmbC2: Miami	0-5	 Loam*	CL-ML* CL	A-4*, A-6	0	0	 95-100	 90 - 1 0 0	 80-95	 60-85	 20-37	 NP-17
FILGUIL	0-5		ML	A-T A-0				 			20-31	ME-1/
	5-31	Clay loam*, loam	1	A-6*, A-7	0	0	90-100	90-100	85-95	55-80	20-50	5-30
į		Loam*, fine sandy			0-1		90-98	'				NP-22
į		loam.	SM	ı i							[
ı	36-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
I							'	,				

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	cation	Frag	ments		centage sieve nu		ng	 Liquid	 Plas-
and soil name	-	i	İ		>10	3-10					limit	
	In	1	Unified	AASHTO	inches Pct	inches	4	10	40	200	Pct	index
ľ		İ										
MmdC3:												
Miami	0-4	Clay loam* Clay loam*, loam		A-6*, A-7-6	0 0			90-100			20-50	5-30 5-30
 		Loam*, fine sandy			0-1			85-98				5-30 NP-22
ľ	51 50	loam.	SM		" -		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
į	36-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
ļ		loam.	SC, SC-SM					 	l I	 		 -
mdD3:		 	 							 		
Miami	0 - 4	Clay loam*	CL*, CL-ML	A-6*, A-7-6	0	0	90-100	90-100	85-95	55-80	20-50	5-30
		Clay loam*, loam		A-6*, A-7	0			90-100				5-30
ļ	31-36	Loam*, fine sandy	CL*, ML, SC,	A-6*, A-4	0-1	0-3	90-98	85-98	65-95	40-70	15-37	NP-22
	36-80	loam. Loam*, fine sandy		A-4*, A-6	 0-1	0-3	90-100	 85-98	 65-90	 40-70	 15-30	 NP-15
Ï		loam.	SC, SC-SM									
İ		İ	ĺ	İ		İ				l	ĺ	
ouA:	0.10						100					
Miliord		Silty clay loam* Silty clay*,	CL*, CL-ML	A-6*, A-4	0 0	0 0		95-100 95-100		'		5-20 20-40
	10 30	silty clay loam,			,		100					20 10
į		clay loam.	İ	j i		į į		İ	İ	ĺ	İ	ĺ
	50-60	•	CL*, SC	A-7*, A-6	0	0	95-100	95-100	90-100	45-100	25-50	10-30
l I		loam to silty clay loam to	 					 	 	 	 	
 		silty clay*.	 					 	 	! 		
į		j	İ	j i		į i		İ	İ	İ	İ	İ
saA:												
 Mishawaka	0-12	Sandy loam*	SM*, SC, SC-SM	A-2-4*, A-4	0 	0	80-100	75-100	60-90 	25-40 	15-25	NP-10
 	12-18	Sandy loam*		 A-2-4*, A-4	0	0	80-100	 75-100	 60-90	 25-40	15-25	 NP-10
į		į	SM	j i		į i		İ	İ	İ	İ	İ
!	18-25		SM*, GM, SC,		0	0	55-100	50-100	40-85	10-25	0-25	NP-10
l I		sand*, loamy sand, sandy	SC-SM	A-1-B				 	 	 	 	
l I		loam.	 					 	 	l I	 	
į	25-58	Sand*, fine sand	SP-SM*, SM	A-2-4*,	0	0	80-100	75-100	30-80	5-35	0-0	NP
]		A-1-B, A-3							[
ļ	58-80	Sand*, coarse sand.	SP-SM*, SM	A-2-4*, A-1-B, A-3	0	0	80-100	75-100	30-70	0-15	0-0	NP
 		sand.	 	A-1-B, A-3				 	 	l I	l I	
tsB2:		İ	İ	i i		i			İ	İ	İ	
Morley		Silt loam*		A-6*, A-4	0	0	100	'	90-100			5-15
ļ	5-20	Silty clay loam*, clay loam, silty		A-7-6*	0	0	98-100	95-100	85-100	75-90	40-60	15-35
 		clay loam, silty	 					 	 	l I	l I	
i	20-29	Clay loam*, silty	CL*, CH	A-6*, A-7-6	0	0-1	98-100	95-100	85-100	70-90	30-60	10-35
ĺ		clay, silty clay	ĺ	İ		İ				ĺ	ĺ	
ļ		loam.										
 	29-80	Clay loam*, silty clay loam.	CL*	A-6*, A-7	0-1	0-3	95-100	95-100	85-95 	70-85 	25-45	10-25
l I		Clay Ioam:	 					 	 	l I	 	
tsC2:		İ	İ	i i		i i		İ	İ	į	i	İ
Morley		Silt loam*		A-6*, A-4	0	0	100	'	90-100			5-15
ļ	5-20	Silty clay loam*,		A-7-6*	0	0	98-100	95-100	85-100	75-90	40-60	15-35
 		clay loam, silty clay.	 					 	 	l I	 	
ľ	20-29	Clay loam*, silty	CL*, CH	A-6*, A-7-6	0	0-1	98-100	95-100	85-100	70-90	30-60	10-35
į		clay, silty clay	l	į i		Į į						
ļ	20.22	loam.	 GT +	13.64.3.7			05 100	05 100	05 05	70.05		
	29-80	Clay loam*, silty clay loam.	 CT¥	A-6*, A-7	0-1 	U-3 	y5-100	95-100 	85-95 	/U-85 	25-45	10-25
		Jan Loam.	I	1		1		ı	ı	I .	I.	1

Table 16.--Engineering Index Properties--Continued

			Classif	ication	Fragi	ments		_	e passin	ng		
Map symbol	Depth	USDA texture					:	sieve n	umber		Liquid	
and soil name			 Unified	AASHTO	>10 description	3-10	 4	10	40	200	limit	ticity index
	In	1	Unitied	AASHIO	Pct	Pct	** 	1 10	1 40	200	Pct	Index
			 	İ	100		 	 	 	 		i
MubD3:			İ	i	İ	İ	İ	İ	İ	İ	i	i
Morley	0 - 4	Silty clay loam*	CL*, CH	A-7-6*	0	0	98-100	95-100	85-100	75-90	40-60	15-35
	4-20	Silty clay loam*,	CL*, CH	A-7-6*	0	0	98-100	95-100	85-100	75-90	40-60	15-35
		clay loam, silty										
		clay.										
	20-29	Clay loam*, silty		A-6*, A-7-6	0	0-1	98-100	95-100	85-100	70-90	30-60	10-35
		clay, silty clay loam.	l I	l I	 	l I	 	 	 	l I		1
	29-80	Clay loam*, silty	 Ст.*	 A-6*, A-7	 0-1	 0-3	 95-100	 95-100	 85-95	 70-85	25-45	10-25
	25 00	clay loam.			0 1	03						10 2.
		!	ļ.	!	l	l	ļ		Į.			
MvhAN: Moston, drained-	0-8	 Muck*	 Dm+	 A-8*	 0	 0	 100	 100	 100	 100		
Moston, drained-		Muck*		A-8*	0 0	0 0	100	100	100	100		
		Coprogenous	OL*	A-5*	0	, ,			85-100		40-50	2-8
		material*.			 	 						- 0
	48-80	Sand*, fine sand,	SP*, SM	A-2*, A-1,	0	0	80-100	60-100	30-80	0-35	0-0	NP
		gravelly loamy	İ	A-3	İ	İ	İ	İ	į	İ	İ	į
		sand.		!								
MvhAU:			l I		 	 	 	 	 	 		
Moston,		1	 		 	 	 	 	i I	 		i
undrained	0-24	Muck*	 PT*	 A-8*	l 0	l 0	100	100	100	100		
		Coprogenous	OL*	A-5*	0	0	95-100	95-100	85-100	75-96	40-50	2-8
		material*.	İ	j	İ	İ	İ	İ	į	İ	İ	į
	48-80	Sand*, fine sand,	SP*, SM	A-2*, A-1,	0	0	80-100	60-100	30-80	0-35	0 - 0	NP
		gravelly loamy		A-3								
		sand.										
MvkA:			 	l I	 	 	 	 	 	 	1	
Morocco	0-9	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	100	98-100	75-95	10-25	0-0	NP
	9-60	Sand*, fine sand,	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
		loamy fine sand,										
		loamy sand.										
	60-80	Sand*, fine sand	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
MwzAN:			 	l I	 	 	 	 	 	 	1	
Muskego, drained	0-9	Muck*	PT*	A-8*	0	0	100	100	100	100	i	i
	9-27	Muck*	PT*	A-8*	0	0	100	100	100	100		j
	27-80	Coprogenous	OL*	A-5*	0	0	95-100	95-100	85-100	75-96	40-50	2-8
		material*.										
MwzAU:			 		 	 	 	 	 	 	 	
Muskego,			İ	i	İ	İ	İ		İ		i	i
undrained	0-27	Muck*	PT*	A-8*	0	0	100	100	100	100		i
		Coprogenous	OL*	A-5*	0	0	'	'	85-100		40-50	2-8
		material*.										

Table 16.--Engineering Index Properties--Continued

Depth	USDA texture			.		İ :	sieve n	umber			l Plas-
	 	Unified	AASHTO	>10 inches	3-10		10	40	200	limit	ticity
In		İ	i	Pct	Pct	İ	<u> </u>	İ	i	Pct	i
	İ	i	i	i	İ	i	İ	İ	i	i	i
		İ			ĺ	ĺ	ĺ	ĺ	İ	İ	
0 - 9	Fine sandy loam*	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
9-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0 - 0	NP
	sandy loam,	1									
14-35			'	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
			A-4, A-6					!			
		1		1	 		 	l I	1	1	1
				I	l I	 	l I	l I	1	1	l I
			l I		 	 	 	! 	1	1	
35-60		SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
			A-1*			'	1		0-15	0-0	NP
	•		i	i	İ	i	İ	İ	i	i	i
	sand to coarse	İ	į	İ	İ	İ	İ				
	sand to sand to	İ			ĺ	ĺ	ĺ	ĺ			
	gravelly sand*,	1									
	very gravelly	1									
	coarse sand.	1									
		!						!			
			'								NP
9-14		SM*, SP-SM	A-2-4*	0	U	80-100	80-100	55-80	10-25	0-0	NP
				I	l I	 	l I	l I	1	1	l I
14-35		SC-SM*. CL.	A-2-4*.	0	l 0	80-100	80-95	45-80	20-50	10-50	NP-20
			'	i							
			i	i	İ	i	İ	İ	i	i	i
	loam, gravelly	İ	į	İ	İ	į	İ	İ	İ	İ	į
	sandy clay loam,	1									
	fine sandy loam.										
35-60	Loamy sand*	SM*	A-2-4*	0	0	100	1		15-35	0-14	NP
60-80	•	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		SW-SM									
	•										
	•	1			 		l I	l I			
		I I	I	I	l I	 	l I	l I	1	1	l I
			l I		 	 	 	! 	1	1	
					 		! 	l I	i	i	i
	İ	i	i	i	İ	i	İ	İ	i	i	i
0-6	Fine sandy loam*	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
6-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
	sandy loam,										
	loamy sand.	1									
14-35			'	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		•	A-4, A-6								
		I I	l I		l I		 	 			
		I I	l I	I	l I	 	l I	l I	1	1	I
35-60		SM*	A-2-4*	0	0	100	100	 50-80	15-35	0-14	NP
			A-1*							'	NP
	•		i	İ	İ	İ	İ	İ	i	i	i
	sand to coarse	i	i	İ	İ	i	İ	İ	i	i	i
	sand to sand to	I	1								
	gravelly sand*,	I	1								
	very gravelly	I	1								
	coarse sand.										
	0-9 9-14 14-35 35-60 60-80 0-9 9-14 14-35 35-60 60-80	In O-9 Fine sandy loam* 9-14 Fine sandy loam, sandy loam, loamy sand. 14-35 Sandy loam*, gravelly sandy loam, gravelly sandy clay loam, fine sandy loam. 35-60 Loamy sand* fine sandy loam*, coarse sand to coarse sand to sand to gravelly sandy coarse sand. O-9 Fine sandy loam*, very gravelly coarse sand. 14-35 Sandy loam, loamy sand* fine sandy loam, dy loam, sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sandy loam, sand	In Unified U	Unified	Unified	In		Number N			

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classif	ication	İ	ments		rcentag sieve n			Liquid	
and soil name	 		 Unified	AASHTO	>10	3-10	4	10	40	200	limit	ticity index
	l In	1		AASHIO	Pct	Pct	*	1	40	1 200	Pct	Index
			i					İ	İ	i		i
OkrD:		İ	İ		l	ĺ	ĺ	ĺ	ĺ		ĺ	ĺ
Oshtemo	0-9	Fine sandy loam*	•	A-2-4*	0	0	80-100	'		10-25	0-0	NP
	9-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
	 	sandy loam,	1	l	 	1	l I	l I	l I		1	1
	 14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	l 0	0	80-100	 80-95	 45-80	20-50	10-50	 NP-20
		gravelly sandy	SC, SM	A-4, A-6		i		İ	İ	i	i	i
		loam, sandy clay	İ			ĺ	İ	ĺ	ĺ	ĺ	ĺ	ĺ
		loam, gravelly	1									
		sandy clay loam,										
	 35_60	fine sandy loam. Loamy sand*	 cm*	 A-2-4*	 0	 0	100	 100	 50-80	15-35	0-14	 NP
	•	Stratified	SP-SM*, SW,	A-1*	0-1			35-85		0-15	0-14	NP
		gravelly coarse		İ				İ	İ			i
		sand to coarse	İ			ĺ	İ	ĺ	ĺ	ĺ	ĺ	ĺ
		sand to sand to	1									
		gravelly sand*,										
	 	very gravelly coarse sand.	1	l	l I	1	l I	l I	l I		1	1
	 	coarse sand:	1		 	i	 	 	l I	1	i	i
OlcA:	İ		i	İ	İ	i	İ	İ	İ	i	i	i
Oshtemo	0-9	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
			SC-SM									
	9-14	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
	 	loamy sand, fine sandy loam.	SC, SM	A-4, A-6	 	1	1	l I	l I	1	1	
	14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	l 0	0	80-100	80-95	45-80	20-50	10-50	 NP-20
		gravelly sandy	SC, SM	A-4, A-6		i			İ			i
		loam, sandy clay	İ			ĺ	ĺ	ĺ	ĺ		ĺ	I
		loam, gravelly	!			!			!	1	1	!
		sandy clay loam,										
	∣ 35-60	fine sandy loam. Loamy sand*	 SM*	 A-2-4*	l I 0	 0	100	100	 50-80	115-35	0-14	 NP
	•	Stratified	SP-SM*, SW,	A-1*	0-1		55-85	1		0-15	0-0	NP
	İ	gravelly coarse	SW-SM	į	İ	į	į	İ	į	į	į	į
		sand to coarse	I									
		sand to sand to										
	 	gravelly sand*, very gravelly	l I	l	 	1	 	 	l I	1	1	
	 	coarse sand.	1		 	i	 	 	l I	1	i	i
	İ		i	İ	İ	i	İ	İ	İ	i	i	i
OlcB:			I									
Oshtemo	0-9	Sandy loam*	•	A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
	0.14		SC-SM	 h = 2 4 *	 0	 0			45 00		10-50	 NTD 24
	9-14 	loamy sand, fine	SC-SM*, CL,	A-2-4*, A-4, A-6	U	0	100-100	 	 ±3-80	20-50	1 10-20	MP-20
		sandy loam.					İ			i	i	i
	14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		gravelly sandy		A-4, A-6								
		loam, sandy clay										
	 	loam, gravelly sandy clay loam,	I I	l	 	1	1	l I	l I	1	1	
		fine sandy loam.	•		 	i		 	l I	i		i
	35-60	Loamy sand*	•	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM			ļ.				1	1	
		sand to coarse				I				1		
	l I	sand to sand to gravelly sand*,	I I	I	l I	I I	I I	l I	 	I	I	
	! 	gravelly sand*,			 			 	! 	İ		
		coarse sand.	i	i		i	İ	I	İ	i	i	i
		i	İ	İ	I	İ	İ	İ	I	i	i	i I

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentage sieve n			 Liquid	 Plas-
and soil name					>10	3-10					limit	ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In				Pct	Pct					Pct	[
0.1 00												
OlcC2:	0-6	 Sandy loam*	 cw	A-4*, A-2-4	 0	 0	 95-100	 90_100	 70_90	25-40	15-25	 NP-10
Osificemo	0-6	Sandy IOam	SC-SM	A-1", A-2-1	l o	1	33-100	30-100 	70-30 	23-40	15-25	NF-10
	6-14	Sandy loam*,	SC-SM*, CL,	A-2-4*,	l 0	l 0	80-100	80-95	 45-80	20-50	10-50	 NP-20
		loamy sand, fine		A-4, A-6	İ	İ	İ			1		i
j		sandy loam.	İ	j	İ	İ	į	İ	İ	İ	İ	İ
	14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		gravelly sandy	SC, SM	A-4, A-6								
		loam, sandy clay								!	!	!
		loam, gravelly										
		sandy clay loam, fine sandy loam.			l I	l I	l I	l I	l I			
	35-60	Loamy sand*	•	A-2-4*	l l 0	l I 0	100	100	 50-80	115-35	0-14	 NP
		Stratified	SP-SM*, SW,	A-1*	0-1		55-85	1	'	0-15	0-0	NP
		gravelly coarse		i	İ	İ	İ	İ	İ	i	i	i
j		sand to coarse	İ	j	İ	İ	į	İ	İ	İ	İ	İ
		sand to sand to		1								
		gravelly sand*,										
		very gravelly								!	!	!
		coarse sand.										
OlcD:			1		 	 	l I	 	 	1	1	1
Oshtemo	0 - 9	Sandy loam*	SM*. SC.	A-4*, A-2-4	l 0	l I 0	95-100	 90-100	 70-90	25-40	15-25	 NP-10
	0 5		SC-SM		l				/ 0 3 0			112 20
	9-14	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	 NP-20
j		loamy sand, fine	SC, SM	A-4, A-6	İ	İ	į	İ	İ	İ	İ	İ
		sandy loam.										
	14-35		SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
			SC, SM	A-4, A-6						!	!	!
		loam, sandy clay										
		loam, gravelly sandy clay loam,	1		l I	l I	l I	l I	l I	1	1	
		fine sandy loam.		1	 	 		 	 	1	1	l I
	35-60	Loamy sand*	•	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
j	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM	1								
		sand to coarse										
		sand to sand to								!	!	!
		gravelly sand*, very gravelly										
		coarse sand.	1		l I	l I	l I	l I	l I	1	1	
		coarbe bana:		1	 	 		 	 	1	1	l I
OmgA:		i	i	i	İ	į	į	i İ		i	i	i
Osolo	0-9	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	90-100	85-100	70-90	10-25	0-0	NP
		Loamy sand*	•	A-2-4*	0	0	90-100				0-0	NP
	25-40	Sand*, fine sand	:	A-2-4*, A-3	0	0	90-100	85-100	55-95	0-15	0-0	NP
			SP									
	40-80	Fine sand*, sand	SP-SM*, SM,	A-2-4*, A-3	0	0	90-100	85-100	55-95	0-15	0-0	NP
			55		l I	l I	l l	l I	l I		1	I I
PaaAN:			i	i			İ			İ	İ	İ
	0-35	Muck*	 PT*	A-8*	0	0	100	100	100	100		
	35-80	Loam*, clay loam,	CL*, CL-ML	A-6*, A-4	0	0	85-100	80-100	70-95	50-90	25-40	5-20
		fine sandy loam,		1						1		1
		silty clay loam.		1								
D377												1
PaaAU:	0 35	Muglet	 D##	7 0+	l . •	^	100	100	100	1 100	1	1
raims, undrained		Muck* Loam*, clay loam,		A-8* A-6*, A-4	0 0	0 0	100 85-100	100 80-100	100	100	25-40	 5-20
	33-60	fine sandy loam,		A-0", A-4	, 0 	, o	1222100	50-100	10-55		23,40	, 3-20
		silty clay loam.	i	i	İ	İ	İ	İ		i	i	i

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif:	ication	Fragr	nents		rcentago sieve no	_	-	 Liquid	 Plas
and soil name				I	>10	3-10					limit	
		ĺ	Unified	AASHTO	inches	inches	4	10	40	200	i	index
	In				Pct	Pct					Pct	
				ļ	!			!		!		
Pmg:		1									1	
Pits, gravel.		 	 		 			 	l I	1	I I	l I
PxlA:			İ	i	i			İ		i	İ	İ
Psammaquents.												
_												
Pxo: Psamments.		 	 	I				 	 			1
radimienca.		 	 	İ					 	1		1
QuiA:		İ	İ	i	i			İ		i	i	i
Quinn	0 - 7	Loam*	CL*, ML,	A-4*, A-6	0	0	95-100	90-100	85-95	55-70	15-40	NP-1
			CL-ML									
	7-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	0-1	85-100	75-98	55-90	25-60	10-40	2-1
	47-80	Loamy sand*,	ML, SC SM*, SP-SM,	 A-2-4*, A-3	0-1	l 0-5	70-100	 55-98	 55-70	0-20	0-0	NP
	27 00	sand.	SP		" -					0 20		
İ		İ	ĺ	Ì		İ		ĺ	ĺ			ĺ
QujA:		1	<u> </u>	İ					ļ.	1		
Quinn	0-7	Sandy loam*	SM*, SC,	A-2-4*, A-4	0	0	80-100	75-100	60-90	25-40	15-25	NP-1
	7-47		SC-SM CL,	 A-4*, A-6	0	 0-1	85-100	 75-98	 55-90	25-60	10-40	2-1
		loam.	ML, SC									
	47-80	Loamy sand*,	SM*, SP-SM,	A-2-4*, A-3	0-1	0-5	70-100	55-98	55-70	0-20	0-0	NP
		sand.	SP									
_												
RenA:	0-15	 Mucky loam*	 ст.* ст.₌мт.	 A-6*, A-4	0	l 0	95-100	 90-98	 75-85	 50-65	20-40	3-2
Rembberder	0 13	Indexy Ioan	ML						/3 03		20 10	3 2
	15-38	Clay loam*, loam	CL*, CL-ML	A-6*, A-4	0	0	85-100	75-100	60-95	50-75	20-50	5-3
	38-42	Loam*, sandy clay	CL*, CL-ML,	A-4*, A-6,	0	0	85-100	75-100	60-95	25-60	20-40	NP-2
		loam, sandy	SC, SC-SM,	A-2-4,								
	42-76	loam. Stratified fine	SM, ML SM*, SP-SM,	A-2-6 A-4*,	 0	 0	95-100	 90-100	 55-95	0-85	0-40	 NP-1
	12 70	sand to silt	ML, CL,	A-2-6,						0 03	0 10	111
		loam*.	CL-ML, SP	A-6, A-3,	į i	i i		į	İ	į	İ	İ
		[A-2-4						1		
	76-80	Loam*, fine sandy	•	A-4*, A-6	0-1	0-3	90-100	85-100	65-90	40-70	15-30	NP-1
		loam.	SC, ML, CL	I				 	l I			
ReyA:		İ		i	i				İ	i		İ
Rensselaer	0-15	Loam*	CL*, CL-ML,	A-6*, A-4	0	0	95-100	90-98	75-85	50-65	20-40	3-2
		[ML	Į.								
		Clay loam*, loam		A-6*, A-4	0			75-100				5-3
	38-42	Loam*, sandy clay loam, sandy	SC, SC-SM,	A-4*, A-6, A-2-4,	0	0	85-100	75-100	60-95	25-60	20-40	NP-20
		loam.	SM, ML	A-2-4,								
	42-76	Stratified fine	•	A-4*,	0	0	95-100	90-100	55-95	0-85	0-40	NP-1
İ		'	ML, CL,	A-2-6,		l İ						
		loam*.	CL-ML, SP	A-6, A-3,						1		
	76-80	Loam*, fine sandy	 CTMT.*	A-2-4 A-4*, A-6	 0-1	N-3 	90-100	 85-100	 65-90	40-70	15-30	 NP-1
	,0-00	Lucama, rine sandy	CH-MH-, DM,	M-0	1 0-1	0-3	20-T00	122-T00	100-20	1-0-10	12220	MF-I

Table 16.--Engineering Index Properties--Continued

Depth											
Depth	USDA texture					:	sieve n	mber		Liquid	
		: : : :		>10	3-10		1 10	1 10		limit	ticity
T	<u> </u>	Unified	AASHTO			4	1 10	40	200	Det	index
111	 	 	 	PCC	PCC	l I	l I	 	l I	PCC	
						 	 		İ	i	i
0-8	Fine sandy loam*	SC-SM*, SM	A-4*	0	0	95-100	80-100	75-90	40-55	15-30	NP-10
8-13			A-6*, A-4	0	0	90-100	80-100	75-95	40-70	10-50	NP-30
	loam.	İ				 	 	 			
13-33			A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
22 62				0.1	0.3			 65 00	140.70	115 20	 NP-15
33-03	sandy loam,		A-4 ^ 	0-1	0-3	90-100 	60 - 96 	65-90 	40-70		NP-15
63-90	'	SC-SM*, SC,	A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
	sandy loam.	SP-SM, SM		ĺ					İ	ĺ	ĺ
90-100			A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
	loam.	CL-ML, CL									
0-9	 Fine candy loam*	 cw+ cp_cw	 a _ 2 _ 4 *	0		 80_100	 80_100	 55_80	10-25	0-0	 NP
		'		0		'	'			0-0	NP
	sandy loam,										i
	loamy sand.		İ	İ		İ	İ	İ	İ	İ	į
14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
	loam, sandy clay loam, gravelly		A-4, A-6 			 	 	 	 	 	
35-60	-	 cw*	 a _ 2 _ 4 *	0		 100	 100	 50_80	15-35	0_14	 NP
						'	'				NP
	gravelly coarse sand to coarse sand to sand to gravelly sand*, very gravelly								 		
	coarse sand.	 				 	 	 	1		
						i İ	i İ		į	i	i
0 - 8	Fine sandy loam*	SC-SM*, SM	A-4*	0	0	95-100	80-100	75-90	40-55	15-30	NP-10
8-13	loam, fine sandy		A-6*, A-4 	0	0	90-100 	80-100 	75-95 	40-70 	10-50	NP-30
13-33	Clay loam*, loam,	'		0	0-1	 90-100 	 80-100 	 75-95 	40-80	20-50	5-30
33-63	Fine sandy loam*, sandy loam,	SC-SM*, SM,		0-1	0-3	 90-100 	 80-98 	65-90	40-70	15-30	 NP-15
63-90	Loamy sand*,		 A-2-4*, A-4 	0	0	 80-100 	 78-98 	 55-85 	10-40	17-27	 NP-10
90-100			 A-4*, A-6 	0-1	0-3	90-100	85-98 	65-90	 40-70 	 15-30 	 NP-15
9	8-13 13-33 33-63 63-90 90-100 0-9 9-14 14-35 35-60 60-80 0-8 8-13 13-33 33-63 63-90	0-8 Fine sandy loam* 8-13 Sandy clay loam*, loam, fine sandy loam. 13-33 Clay loam*, loam, sandy clay loam*, sandy loam*, loam. 33-63 Fine sandy loam*, sandy loam, loam. 63-90 Loamy sand*, sandy loam*, loam. 0-100 Fine sandy loam*, loam, loam, loam*, loam, loam*, loam, loam*, loam, loam*, sandy loam*, gravelly sandy loam, gravelly sandy clay loam, gravelly sandy clay loam, fine sandy loam. 35-60 Loamy sand*60-80 Stratified gravelly coarse sand to coarse sand to coarse sand to sand to gravelly coarse sand*. coam, fine sandy loam*, loam, fine sandy loam*, loam, fine sandy loam*, sandy clay loam*, sandy clay loam*, sandy loam*, sandy loam, loam, sandy loam, loam, sandy loam, loam, sandy loam. 63-90 Loamy sand*, sandy loam*, sandy loam. Fine sandy loam*, sandy loam. Fine sandy loam*, sandy loam. Sandy loam. Fine sandy loam*, andy loam*, sandy loam*, sandy loam*, sandy loam*, s	0-8 Fine sandy loam* SC-SM*, SM 8-13 Sandy clay loam*, CL*, CL-ML, loam, fine sandy SC, SC-SM loam. 13-33 Clay loam*, loam, CL*, SC, sandy clay loam*, SC-SM*, SM, sandy loam*, SC-SM*, SM, sandy loam*, SC-SM*, SM, sandy loam*, SC-SM*, SM,	1n	Unified		Unified AASHTO inches inches 4	Number N	In	In	No. No.

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classifi 	cation	Fragi	ments		rcentage sieve nu			 Liquid	 Plas
and soil name	 	1	Unified	AASHTO	>10	3-10	 4	10	40	200	limit	ticity
	 In	1	Unition		Pct	Pct	l -	1	1	1	Pct	I
							! 	! 	! 	İ		i
RopB:	İ	i	i	İ	i	İ	İ	İ	İ	i	i	i
Oshtemo	0-9	Fine sandy loam*	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
	9-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
		sandy loam,										
		loamy sand.										
	14-35		SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		gravelly sandy	SC, SM	A-4, A-6								
		loam, sandy clay			!						!	
		loam, gravelly									!	
		sandy clay loam,										
	35 60	fine sandy loam. Loamy sand*		 A-2-4*	 0	 0	 100	 100	 50-80	115 25	0-14	 NP
		:		A-2-4^ A-1*	0-1			100 35-85	'	0-15	0-14	NP
	00-00 	gravelly coarse			0-1	U-3	55-65	33-03	1 0-30	0-13	0-0	142
	l I	sand to coarse	511 511	İ	i	 	 	 	 	i	İ	İ
	İ	sand to sand to	İ	İ	i	İ	' 	' 	' 	i	ì	i
	İ	gravelly sand*,	i	İ	i	İ	İ	İ	İ	i	i	i
	İ	very gravelly	İ	İ	į	İ	İ	İ	İ	İ	į	İ
		coarse sand*.										
RopC2:												
Riddles		Fine sandy loam*		A-4*	0		•		'	40-55		NP-1
	5-13	Sandy clay loam*, loam, fine sandy		A-6*, A-4	0	0	90-100	80-100	/5-95	40-70	10-50	NP-30
	l I	loam.	SC, SC-SM	I I		l I	l I	l I	l I	1	I I	l I
	 13_33	Clay loam*, loam,	 CT.* SC	 A-6*, A-4	 0	 0-1	 90 - 100	 80_100	 75-95	40-80	20-50	5-30
	25 55	sandy clay loam.				" -			/ 0 3 0			
	33-63	Fine sandy loam*,		A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-1
	İ	sandy loam,	ML, CL-ML	İ	i	İ	İ	İ	İ	i	İ	i
	ĺ	loam.	ĺ	ĺ	İ	ĺ				İ	Ì	
	63-90	Loamy sand*,	SC-SM*, SC,	A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
		sandy loam.	SP-SM, SM									
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-1
		loam.	CL-ML, CL									
Oakkama		 Bine sender leemt	ant an an							110 25		
Oshtemo		Fine sandy loam* Fine sandy loam*,		A-2-4* A-2-4*	0 0	0 0	80-100	80-100	'		0-0	NP
	0-14	sandy loam,	SM", SF-SM	A-2-4"	0	1	80-100 	80-100	55-60	10-23	0-0	NF
	l I	loamy sand.	İ	İ	i	 	 	 	 	i	İ	İ
	14-35	:	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	 NP-20
	İ	gravelly sandy	SC, SM	A-4, A-6	i	i	İ	İ	İ	i	i	i
	İ	loam, sandy clay	İ	İ	İ	İ	İ	İ	İ	İ	į	İ
		loam, gravelly										
		sandy clay loam,										
		fine sandy loam.										
		Loamy sand*		A-2-4*	0	0	100		50-80		0-14	NP
	60-80			A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
	 	gravelly coarse	SW-SM	1	1		 	 	 	1		1
	l I	sand to coarse sand to	 	I I	I I	I I	l I	 	l I	1	1	1
	ı İ	gravelly sand*,	 	i I	I I	I I	I I	I I	I I	I I	I	l
	ı İ	very gravelly	i I	İ	İ	l I	l I	! 	l I	İ		İ
		coarse sand.	İ	İ	i	İ	ĺ	 		i	İ	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentage			Liquid	 Plas-
and soil name			Unified	AASHTO	>10 inches	3-10		10	40	200		ticity index
	In	Ī			Pct	Pct	<u> </u>	<u>,,</u> 	, <u></u>		Pct	
	ĺ	į	İ	į	į	ĺ	ĺ	į	ĺ	į	į	į
RopD2:												
Riddles	0-5	Fine sandy loam*		A-4*	0 0	0 0	,	'	'	40-55	15-30 10-50	NP-10 NP-30
	5-13	Sandy clay loam*, loam, fine sandy		A-6*, A-4	0	U	90-100	80-100	13-95 	140-70	10-50	NP-30
	! 	loam.	50, 50 51			 	 		 			İ
	13-33	Clay loam*, loam,	CL*, SC, SC-	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.	SM, CL-ML									
	33-63	Fine sandy loam*,		A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
		sandy loam,	ML, CL-ML									
	 63-90	loam. Loamy sand*,	SC-SM*, SC,	A-2-4*, A-4	 0	 0	 80-100	 78-98	 55-85	10-40	17-27	 NP-10
	03 30	sandy loam.	SP-SM, SM			1		70 30	33 03	10 10	1	111 10
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
	ĺ	loam.	CL-ML, CL	İ	ĺ	ĺ	ĺ	ĺ		İ	ĺ	ĺ
Oshtemo		Fine sandy loam*		A-2-4*	0 0	0 0	,	80-100	'		0-0	NP NP
	6-14	Fine sandy loam*, sandy loam,	SM^, SP-SM	A-2-4°	0	U	80-100	80-100	55-60	10-25	0-0	NP
	İ	loamy sand.	İ		i	İ	İ	<u>.</u>	i	i	i	i
	14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		gravelly sandy	SC, SM	A-4, A-6								
		loam, sandy clay			!							
	 	loam, gravelly										
	l I	sandy clay loam, fine sandy loam.	 	l I	 	l I	l I	 	l I	I	I	I I
	35-60	Loamy sand*	SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM									
		sand to coarse										
	l I	sand to sand to gravelly sand*,	1	l I		 	 		 		1	1
	l I	very gravelly	l I	l I	 	 	 	 	 			1
	İ	coarse sand.	İ	i	i	İ	İ	İ	İ	i	i	İ
			Į.									
RoqB: Riddles	 0-8	 Fine sandy loam*	 sc-sm* sm	 A-4*	 0	 0	 95-100	 80-100	 75-90	40-55	15-30	 NP-10
RIGGIES		Sandy clay loam*,		A-6*, A-4	0		,	'	'	40-70		NP-30
	İ	loam, fine sandy		İ	i	İ	İ	i	İ	i	i	i
		loam.		1								
	13-33	Clay loam*, loam,		A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
	 33_63	sandy clay loam. Fine sandy loam*,		L A-4*	 0-1	0-3	 90_100	 20_92	 65-90	 40-70	15-30	 NP-15
	33-03	sandy loam,			0-1	0-3 			03-30	40-70	13-30	MF-13
	İ	loam.	ĺ	i	i	İ	İ	İ	İ	i	i	i
	63-90	Loamy sand*,	SC-SM*, SC,	A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
	!	sandy loam.	SP-SM, SM		!						1	
	90-100	Fine sandy loam*, loam.	SC-SM*, SC, CL-ML, CL	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
	l I	IOaiii.	CL-ML, CL	l I	 	l I	l I	 	l I	I	I	I I
Metea	0-9	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	100	95-98	75-90	10-25	0-0	NP
	9-28	Loamy sand*,	SM*, SP-SM	A-2-4*	0	0	100	85-98	75-90	0-25	0-0	NP
		loamy fine sand,	ļ	İ		ļ.	ļ.				[
		sand.					00 -0-	DE 404	LEE 05	105 55	110 00	377 0 0
	 28-32	Sandy loam*, fine		 A-4*, A-2-4	0	0	90-100	75-100	55-95 	25-60	10-60	NP-20
	 28-32 	Sandy loam*, fine sandy loam,	CL-ML, CL	 A-4*, A-2-4 	, 0 	0 	90-100 	75-100 	55-95 	25-60	10-60	NP-20
	 	Sandy loam*, fine	CL-ML, CL	A-4*, A-2-4 A-6*, A-4	0 0	i I	 	 	 	25-60 55-80	İ	NP-20 5-30
	 32-44	Sandy loam*, fine sandy loam, sandy clay loam.	CL-ML, CL	İ	 	 0-1	 95-100	 90-100	 85-95	 55-80	İ	 5-30

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classifi	cation	Fragi	ments		rcentago sieve n			 Liquid	 Plas-
and soil name	İ	Ì	i		>10	3-10	i					ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In	ļ	ļ.		Pct	Pct					Pct	
RoqC2:	 	 	 	l I	l I	l I	l I	l I	 		I	l I
Riddles	0-5	Fine sandy loam*	SC-SM*, SM	 A-4*	l 0	l 0	95-100	80-100	75-90	40-55	15-30	 NP-10
	'	Sandy clay loam*,		A-6*, A-4	0	'	90-100	'				NP-30
	 	loam, fine sandy	SC, SC-SM	 	 	 	 	 	i I	į I	į į	i I
	13-33	Clay loam*, loam,	CL*, SC,	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.	SC-SM, CL-ML									
	33-63	Fine sandy loam*,	SC-SM*, SM,	A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
		sandy loam,	ML, CL-ML									
		loam.	1									
	63-90		SC-SM*, SC,	A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
			SP-SM, SM									
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
	 	loam.	CL-ML, CL		 	 	 	 	 			
Metea	0-7	Loamy sand*	SM*, SP-SM	 A-2-4*	0	0	100	95-98	 75-90	10-25	0-0	NP
	7-28	Loamy sand*,	SM*, SP-SM	A-2-4*	0	0	100	85-98	75-90	0-25	0-0	NP
	 	loamy fine sand, sand.	 	 	 	 	l I	l I	 	İ I	İ	i I
	28-32	Sandy loam*, fine	SC-SM*, SC,	A-4*, A-2-4	0	0	90-100	75-100	55-95	25-60	10-60	NP-20
		sandy loam,	CL-ML, CL	ĺ			ĺ	ĺ	ĺ		Ì	Ì
		sandy clay loam.										
	32-44	Clay loam*, loam	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	90-100	85-95	55-80	20-50	5-30
	44-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
		loam.	ML, SC									
RoqD2:	 	 	 	 	 	 	 	 	 			l I
Riddles	0-5	Fine sandy loam*	SC-SM*, SM	A-4*	0	0	95-100	80-100	75-90	40-55	15-30	NP-10
	5-13	Sandy clay loam*,	CL*, CL-ML,	A-6*, A-4	0	0	90-100	80-100	75-95	40-70	10-50	NP-30
	 	loam, fine sandy loam.	SC, SC-SM	 	 	 	 	 	 	İ I	j I	i I
	13-33	Clay loam*, loam,	CL*, SC,	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.	SC-SM, CL-ML									
	33-63	Fine sandy loam*,	SC-SM*, SM,	A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
		sandy loam,	ML, CL-ML									
		loam.	1									
	63-90			A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
			SP-SM, SM									
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
		loam.	CL-ML, CL									
Metea	 0-7	 Loamy sand*	 cm*	 A-2-4*	l I 0	l I 0	 100	 95-98	 75_90	10-25	0-0	 NP
месеа	•	· -		A-2-4*	l 0	l 0		85-98		0-25	0-0	NP
	, . <u>-</u> 0	loamy fine sand,			l	l	200			0 20		
	' 	sand.	i		i I	i I	İ	İ	İ	i	ì	i
	28-32	Sandy loam*, fine	SC-SM*, SC,	A-4*, A-2-4	0	0	90-100	75-100	55-95	25-60	10-60	NP-20
		sandy loam,	CL-ML, CL				İ	İ	i	1		i
	İ	sandy clay loam.		İ	İ	İ	İ	İ	i	i	İ	İ
	32-44	Clay loam*, loam	CL*, CL-ML	A-6*, A-4	0	0-1	95-100	90-100	85-95	55-80	20-50	5-30
	44-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
		loam.	ML, SC									

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif: 	ication	Fragi	ments	'	rcentage sieve n	-	ng	 Liquid	 Plas-
and soil name] [Unified	AASHTO	>10 inches	3-10	4	10	40	200	limit	ticity
	In	1		1	Pct	Pct	-	l	l		Pct	
į		İ	İ	j	i	į	İ	İ	İ	İ	İ	İ
SdzA:												
Selfridge	0-11	Loamy sand*		A-2*, A-1	0	0-5	95-100	90-100	45-80	10-35	0-20	NP-5
 	11-25	Loamy sand*,	SP-SM SM*, SP-SM	 A-2-4*, A-3	l l 0	 0-1	 95-100	 90-100	 55-95	 5-25	0-0	 NP
		sand, loamy fine sand.	 		-			 	 			
į	25-29	Sandy loam*,	SC-SM*, SC,	A-4*, A-6,	0	0-1	90-100	85-100	50-95	25-60	17-40	NP-25
		sandy clay loam,		A-2-6,								
		loam.	CL	A-2-4								
l I	29-32	Clay loam*, silty clay loam, loam.	CL*, CL-ML	A-6*, A-4,	0 	0-1	90-100	85-100	80-100	55-95 	20-50	5-30
 	32-80	Loam*	CL-ML*, CL,	A-4*, A-6	 0-1	0-3	90-100	 85-98	 70-90	 45-70	15-30	 NP-15
į		i I	ML, SC		 	 	 	 	 	 	į į	i I
Crosier	0-11	Loam*	CL-ML*, CL,	A-4*, A-6	0-1	0-1	95-100	90-100	 85-95 	 55-90 	20-40	 NP-17
į	11-30	Clay loam*, loam, sandy clay loam.		A-6*, A-7-6	0-1	0-1	95-100	90-100	75-95	45-80	25-50	 12-30
į	30-38	Loam*, sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-100	65-95	40-70	15-40	NP-22
!		loam, fine sandy	ML, SC						ļ		1	ļ.
ļ	30 00	loam.	or with at	3 4+ 3 6		0.3	00 100	 0F 100	 65-90		115 20	 ND 15
 	38-80	loam*, sandy	CL-ML*, CL,	A-4*, A-6	0-1 	0-3	 90-100	 85-100	65-90 	40-70 	15-30	NP-15
Ï		loam.			İ				İ		i	İ
ĺ		İ	ĺ						ĺ		İ	ĺ
SdzaB:												
Selfridge	0-11	Loamy sand*	SM*, SC-SM,	A-2*, A-1	0 	0-5 	95-100	90-100	45-80	10-35 	0-20	NP-5
	11-25	Loamy sand*,	SM*, SP-SM	A-2-4*, A-3	0	0-1	95-100	90-100	 55-95	5-25	0-0	NP
İ		sand, loamy fine sand.	 	İ	i I	 	 	 	 	 	İ I	
į	25-29	Sandy loam*,	SC-SM*, SC,	A-4*, A-6,	0	0-1	90-100	85-100	50-95	25-60	17-40	NP-25
Į.		sandy clay loam,		A-2-6,								
ļ	20 20	loam.	CL	A-2-4	 0		00 100		 80-100			 5-30
	29-32	Clay loam*, silty clay loam, loam.		A-6*, A-4,	0	0-1	90-100	 85-100	80-100	55-95 	20-50	5-30
ľ	32-80	Loam*	,	A-4*, A-6	0-1	0-3	90-100	85-98	70-90	45-70	15-30	 NP-15
į		į	ML, SC									ĺ
 Brems	0-9	Loamy sand*	∣ ∣gm ∗ gp_gm	A-2-4*	l I 0	l I 0	100	 85-100	 60-100	 10-35	0-0	 NP
DI CIND		Loamy sand*		A-2-4*	0	0			60-100		0-0	NP
į	27-72	Sand*, fine sand,	SP*, SP-SM,	A-2-4*, A-3	0	0	100	85-100	55-95	0-25	0-0	NP
ļ		loamy sand.	SM									
 	72-80	Sand*, fine sand, loamy sand.	SP*, SP-SM, SM	A-2-4*, A-3	0 	0 	100	85-100 	55-95 	0-25 	0-0	NP
ľ					i			! 	İ		i	İ
SesA:		[l								1	
Schoolcraft		Loam*		A-4*	0	0	'	'	70-95		20-30	5-10
 	14-29	Sandy clay loam*, clay loam, loam.	•	A-6*, A-7	0 	0 	90-100	85-100	70-95 	35-75	25-45	10-20
 	29-39		SC-SM*, SM	A-2-4*	0	0	 65-100	 55-80	 30-70	10-35	10-40	 NP-20
į		loam*, gravelly		İ	i	İ	İ	İ	į	İ	i	į
		loamy sand,										
		gravelly sandy						 		 		
l I	39-77	clay loam. Sand*, fine sand,	 SP-SM*.SM	 A-2-4*, A-3	 0	 0	 90-100	 85-100	 55-85	 0-25	0-0	 NP
	,,	loamy sand.	SP SP							5 25		
į	77-95		SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-85	15-40	0-10	0-0	NP
İ		sand*, coarse	SP-SM, SW	A-1-B							1	
		sand, sand.	I .	1								

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentag sieve n	e passi: umber	ng	 Liquid	 Plas
and soil name					>10	3-10					limit	ticity
		<u> </u>	Unified	AASHTO	inches	inches	4	10	40	200		index
	In		<u> </u>	<u> </u>	Pct	Pct					Pct	
G-13												
SnlA: Southwest	0-10	Silt loam*	 Ст.* МТ.	A-6*, A-4	l l 0	 0	 100	 100	 95-100	 75_100	 27_30	3-1
		Silty clay loam*,		A-6*, A-4	0	0	100		95-100	'		3-1
ļ	20 20	silt loam.		0 ,	İ		200	=00				
į	23-34	Silty clay loam*,	CL*, CL-ML,	A-6*, A-4	0	0	95-100	92-100	85-100	50-100	20-45	3-3
ĺ		silt loam, loam.	ML	İ			ĺ	ĺ	ĺ	ĺ	ĺ	ĺ
	34-45	Silty clay loam*,		A-6*, A-4,	0	0	95-100	92-100	85-100	50-100	20-45	3-3
		silt loam, loam.		A-7-6								
ļ	45-75	Silty clay loam*,		A-6*, A-4,	0	0	95-100	92-100	85-100	65-100	25-45	3-2
I	75.00	silt loam.	ML	A-7-6						 	100 45	
	/5-60	Silt loam*, loam, clay loam.	ML	A-6*, A-7-6, A-4	0 	0-1	95-100	92-100	75-100	 50-100	20-45	NP-2
i İ		Clay loam:		11 / 0/ 11		 	 	 	 	 	i	i
TmpA:			İ	i		İ	İ	İ	İ	İ	i	i
Tracy	0-9	Sandy loam*	SC-SM*, SM,	A-2-4*, A-4	0	0	80-100	75-98	60-80	25-40	0-25	NP-1
ĺ			SC	İ			ĺ	ĺ	ĺ	ĺ	ĺ	ĺ
	9-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	0	85-100	75-98	55-90	25-60	10-40	NP-2
		loam.	ML, SM									
	47-60		SC*, SC-SM,	A-6*, A-4,	0	0-1	60-90	50-75	30-70	10-60	0-40	NP-2
		clay loam*,	SM, SP-SM	A-2-4		 	 			 		
l I		gravelly loamy sand.	I I	I		 	l I	 	 	l I	1	
 	60-86	Stratified loamy	SM*. SP-SM	A-3*,	 0-1	l I 0−3	∣ 65-100	 50-98	 15-85	 0-25	0-0	NP
	00 00	sand to gravelly		A-1-B,	0 =	03				0 23		111
i		sand*.	İ	A-2-4		İ	İ	İ	İ	İ	i	i
ĺ			ĺ	İ			ĺ	ĺ	ĺ		ĺ	ĺ
TmpB:												
Tracy	0-9	Sandy loam*		A-2-4*, A-4	0	0	80-100	75-98	60-80	25-40	0-25	NP-1
ļ			SC									
l I	9-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	0	85-100	75-98	55-90	25-60	10-40	NP-2
 	47-60	Gravelly sandy	SC*, SC-SM,	A-6*, A-4,	l l 0	 0-1	 60-90	 50-75	 30-70	∣ 10-60	0-40	NP-2
	1, 00	clay loam*,	SM, SP-SM	A-2-4	İ	• -					0 10	-112 -2
į		gravelly loamy		i		İ	İ	İ	İ	İ	i	i
ĺ		sand.	ĺ	İ			ĺ	ĺ	ĺ		ĺ	ĺ
	60-86	Stratified loamy	SM*, SP-SM	A-3*,	0-1	0-3	65-100	50-98	15-85	0-25	0-0	NP
ļ		sand to gravelly		A-1-B,				!	!		!	ļ
ļ		sand*.		A-2-4								
TmpC2:			 			 	l I	l I	l I	l I	1	
Tracy	0-5	Sandy loam*	SC-SM*, SM,	A-2-4*, A-4	0	0	80-100	75-98	60-80	25-40	0-25	NP-1
i		į -	sc	i		İ	İ	İ	İ	İ	i	i
į	5-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	0	85-100	75-98	55-90	25-60	10-40	NP-2
		loam.	ML, SM									
	47-60		SC*, SC-SM,	A-6*, A-4,	0	0-1	60-90	50-75	30-70	10-60	0-40	NP-2
ļ			SM, SP-SM	A-2-4								
l I		gravelly loamy sand.	1	I		 	 	 	 	l I	1	
 	60-86	Stratified loamy	 sm+ sp_sm	A-3*,	 0-1	 0-3	 65-100	 50-98	 15-85	 0-25	0-0	 NP
	00 00	sand to gravelly		A-1-B,	0 =	03				0 23		111
į		sand*.	İ	A-2-4		İ	İ	İ	İ	İ	i	i
ĺ			ĺ	İ			ĺ	ĺ	ĺ	ĺ	ĺ	ĺ
TmpD:		!	[[[
Tracy	0-9	Sandy loam*		A-2-4*, A-4	0	0	80-100	75-98	60-80	25-40	0-25	NP-1
	0.45		SC									
 	9-47		SC-SM*, CL,	A-4*, A-6	0	0	85-100 	/5-98 	55-90	25-60 	10-40	NP-2
I	47-60	1	SC*, SC-SM,	A-6*, A-4,	l l 0	 0-1	 60-90	 50-75	 30-70	 10-60	0-40	 NP-2
l I	-1-00		SM, SP-SM	A-2-4	0	0-1	50-50	502/5	30270	1 10-00	0340	MF-Z
I I		gravelly loamy				 		İ	İ	ĺ	i	
i		sand.	İ	i		İ	į	i	i	İ	i	İ
į	60-86	Stratified loamy	SM*, SP-SM	A-3*,	0-1	0-3	65-100	50-98	15-85	0-25	0-0	NP
ĺ		sand to gravelly		A-1-B,								
		sand*.		A-2-4								
		1	I .	1		I	I	1	1	I	1	1

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	ments		rcentag sieve n			 Liquid	 Plas
and soil name		!		İ	>10	3-10	!				limit	
		1	Unified	AASHTO		inches	4	10	40	200	<u> </u>	index
	In				Pct	Pct					Pct	
TnwA:		1	I I	I	 	l I	 	l I	l I	l I	 	l I
Troxel	0-50	Silt loam*	CL*, CL-ML	A-6*, A-4	0	l l 0	100	100	 90-100	 75-90	25-40	5-15
		Clay loam*		A-6*, A-4	0	0	95-100					5-35
į	70-91	Sandy loam*,	SC-SM*, CL,	A-4*,	0	0-1	85-100	75-98	55-90	25-60	10-40	NP-20
		loam.	CL-ML, SC	A-2-4, A-6								
			!						!	!		
TxuA:	0 10	Loamv sand*								110.05		
Tyner		1 2	SM*, SP-SM	A-2-4*	0 0	'	90-100 90-100				0-0	NP
	12-20	loamy fine sand.			0	0		 	55-55	10-25	0-0	142
i	20-41	Sand*, fine sand,		A-2-4*, A-3	0	0	90-100	85-100	55-85	0-25	0-0	NP
į		loamy sand.	SP	i	i	i	i	İ	İ	İ	i	İ
İ	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
		sand, fine sand.	SP	A-1-B, A-3								
TxuB:		1										
Tyner		Loamy sand*		A-2-4*	0 0	'	90-100				0-0	NP
	12-20	Loamy sand*, loamy fine sand.	SM*, SP-SM	A-2-4*	0	0 	90-100	85-100	55-95	10-25 	0-0	NP
	20-41	Sand*, fine sand,		A-2-4*, A-3	0	l l 0	90-100	 85-100	 55-85	0-25	0-0	NP
Ï		:	SP		i							
i	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
İ		sand, fine sand.	SP	A-1-B, A-3	ĺ		ĺ	ĺ		ĺ	İ	
TxuC:												
Tyner		Loamy sand*		A-2-4*	0	'	90-100				0-0	NP
	12-20	Loamy sand*,	SM*, SP-SM	A-2-4*	0	U	90-100	85-100	55-95	10-25 	0-0	NP
	20-41	Sand*, fine sand,		A-2-4*, A-3	0	l l 0	90-100	 85-100	 55-85	0-25	0-0	NP
i		loamy sand.	SP		i -	i -						
İ	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
		sand, fine sand.	SP	A-1-B, A-3								
I												
TxuD:												
Tyner		Loamy sand*		A-2-4*	0 0	'	90-100				0-0	NP
l	12-20	Loamy sand*, loamy fine sand.	SM*, SP-SM	A-2-4*	0	0 	90-100	85-100	55-95	10-25 	0-0	NP
	20-41	Sand*, fine sand,		A-2-4*, A-3	0	l l 0	90-100	 85-100	 55-85	0-25	0-0	NP
		loamy sand.	SP		i			İ	İ	İ		i
į	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
		sand, fine sand.	SP	A-1-B, A-3								
TxuF:		1-										
Tyner		Loamy sand*		A-2-4*	0		90-100					NP
	12-20	Loamy sand*, loamy fine sand.	SM*, SP-SM	A-2-4*	0	0	90-100	 85-100	55-95	10-25 	0-0	NP
	20-41	Sand*, fine sand,		A-2-4*, A-3	0	l 0	90-100	85-100	 55-85	0-25	0-0	NP
			SP	1	į	i					i -	
i	41-80		SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
İ		sand, fine sand.	SP	A-1-B, A-3		l						
I			[
Uam:												
Udorthents,			1			l			l I	l I	1	1
loamy.		I	I	1	I	I	I	I	I	I	1	I

Table 16.--Engineering Index Properties--Continued

I		!	Classifi	cation	Fragi	ments		rcentag				
Map symbol	Depth	USDA texture	ļ					sieve n	umber		Liquid	
and soil name					>10	3-10			1 40	1 000		ticity
	_	1	Unified	AASHTO		inches	4	10	40	200		index
	In		 	1	Pct	Pct	 		1		Pct	
UdeA:			 		 	 	 	 	İ			
Urban land.			İ	İ	İ	İ	İ	i	i	i	i	i
İ			ĺ	Ì			ĺ	ĺ	ĺ			ĺ
Bainter	0 - 9	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
	0.12		SC-SM								115.05	 NP-10
	9-13	Sandy loam*	SM*, SC, SC-SM	A-4*, A-2-4	0	0	95-100 	90-100	75-95 	20-50	15-25	NP-10
	13-31	Sandy loam*,	SM*, SC,	 A-4*, A-2-4	l l 0	l 0	 80-100	 75-95	30-80	15-40	14-27	 NP-13
i		coarse sandy	SC-SM	į ,			İ		İ		i	
İ		loam.	ĺ	Ì			ĺ	ĺ	ĺ		ĺ	ĺ
I	31-44		SM*, GM, SC,	A-4*, A-2-4	0	0-5	55-95	50-90	25-80	15-50	14-40	NP-18
		loam*, sandy	SC-SM						!		!	!
		loam, sandy clay loam, gravelly	 		l	 	 				1	
		coarse sandy	 	1	l I	 	l I	 	I I	I		
		loam.	 		 	 	 		İ		i	i
i	44-54	Sandy clay loam*	CL*, CL-ML,	A-6*,	0	0	60-98	50-90	30-85	15-65	20-60	5-30
İ			SC, SC-SM	A-2-4,			ĺ	ĺ	ĺ			ĺ
I				A-2-6, A-4								
	54-80	•	SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-85	15-40	0-10	0-0	NP
		sand, gravelly coarse sand.	SP-SM, SW	A-1-B	l	 	 				1	
		Coarse sand.	 		l I	l I	l I	 	I I		1	1
UdeB:					i	İ	İ	<u>.</u>	i	i	i	i
Urban land.			ĺ	Ì			ĺ	ĺ	ĺ			ĺ
ļ		!		<u> </u>								
Bainter	0-9	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
	0 12	 Sandy loam*	SC-SM	A-4*, A-2-4	l I 0	 0	 05 100	 90-100	 75 05		115 25	 NP-10
	9-13	Sandy Toam	SC-SM	A-4", A-2-4	0	0 	 	30-100 	73-93	20-30	15-25	NF-10
i	13-31	Sandy loam*,	SM*, SC,	A-4*, A-2-4	0	0	80-100	75-95	30-80	15-40	14-27	NP-13
į		coarse sandy	SC-SM	İ	İ	İ	İ	į	İ	İ	į	į
		loam.										
	31-44		SM*, GM, SC,	A-4*, A-2-4	0	0-5	55-95	50-90	25-80	15-50	14-40	NP-18
		loam*, sandy	SC-SM									
l		loam, sandy clay loam, gravelly	 	1	l I	l I	l I	 	 	I	1	1
		coarse sandy	 	1	 	 	 	 	i i			
i		loam.			i	İ	İ	<u> </u>	i	i	i	i
i	44-54	Sandy clay loam*	CL*, CL-ML,	A-6*,	0	0	60-98	50-90	30-85	15-65	20-60	5-30
I			SC, SC-SM	A-2-4,								
!				A-2-6, A-4								!
	54-80	•	SW-SM*, GP,	A-1-a*,	0	0-5	45-90	35-85	15-40	0-10	0-0	NP
l		sand, gravelly coarse sand.	SP-SM, SW	A-1-B	l I	l I	l I	 	[[1	1	I I
		Coarse samu.	1 	1	l I	I I	I I	I I	I I	I	I	I I

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classific	cation	Fragm	ments		rcentage sieve n			 Liquid	 Plas-
and soil name					>10	3-10					limit	ticity
		1	Unified	AASHTO	inches	inches	4	10	40	200	<u> </u>	index
	In	1	!	!	Pct	Pct			!	!	Pct	!
UdeC:												
Urban land.		 	 	 			 	 	 		 	
Bainter	0-5	Sandy loam*	 SM*, SC, SC-SM	 A-4*, A-2-4 	0	0	 95-100 	 90-100 	 70-90 	25-40	15-25	 NP-10
İ	5-13	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	 NP-10
	13-31	Sandy loam*, coarse sandy loam.	SM*, SC, SC-SM 	A-4*, A-2-4 	0 	0	80-100 	75-95 	30-80 	15-40 	14-27 	NP-13
	31-44	Coarse sandy loam*, sandy loam, sandy clay loam, gravelly coarse sandy	SM*, GM, SC, SC-SM 	A-4*, A-2-4 	0	0-5	55-95 	50-90	25-80	15-50 	14-40 	NP-18
	44-54	loam. Sandy clay loam* 		 A-6*, A-2-4,	0	0	 60-98 	 50-90 	 30-85 	 15-65 	20-60	 5-30
	54-80	Coarse sand*, sand, gravelly coarse sand.	 SW-SM*, GP, SP-SM, SW 	A-2-6, A-4 A-1-a*, A-1-B 	 0 	0-5	 45-90 	 35-85 	 15-40 	 0-10 	 0-0 	 NP
UdkA: Urban land.		 	 	 			 	 	 	 	 	
Brady	0-9	 Sandy loam*	 SM*, CL-ML, ML, SC-SM	 A-4*, A-1, A-2	0	0-5	 95-100 	 75-100 	 45-85 	20-55	0-25	 NP-7
	9-37	Sandy loam*, sandy clay loam, gravelly sandy	SM*, CL, ML,		0	0-5	 85-100 	 60-100 	 35-90 	20-55	 15-35 	 NP-15
	37-56	loam. Loamy sand*, sandy loam.	 SM*, SC, SC-SM, SP-SM	 A-2-4*, A-1, A-2, A-4	 0 	0-5	 95-100 	 75-100 	 35-70 	 10-40 	 0-30 	 NP-10
	56-80	Gravelly sand*, coarse sand, gravel.	SP-SM*, GP, GP-GM, SP	A-1*, A-2-4, A-3	0	0-5	40-95 	30-85	 20-60 	0-10	0-0	NP
UdzA: Urban land.		 	 	 			 	 	 			
Auten	0-9	 Loam*	 CL*, ML, CL-ML	 A-4*, A-6 	0	0	 95-100 	 90-100 	 85-95 	 55-70	 15-40 	 NP-15
	9-22	Clay loam*, loam, sandy clay loam.		 A-6*, A-7-6 	0-1	0-1	 95-100 	 90-100 	 75-95 	45-80	25-50	 12-30
	22-80	Stratified loamy sand to sand*.	SM*, SP, SP-SM	A-3*, A-2-4	0-1	0-3	80-100	55-98 	40-80	0-20	0-0	NP
UeaA: Urban land.		 	 	 			 	 	 	 	 	
Crosier	0-11	Loam*	CL-ML*, CL,	A-4*, A-6	0-1	0-1	95-100	90-100	85-95	55-90	20-40	 NP-17
į	11-30	Clay loam*, loam, sandy clay loam.	ĺ	A-6*, A-7-6	0-1		95-100 	İ	İ	İ	İ	12-30
 	30-38	Loam*, sandy loam, fine sandy loam.		A-4*, A-6 	0-1 	0-3	90-100 	85-100 	65-95 	40-70 	15-40 	NP-22
	38-80	'		A-4*, A-6 	0-1	0-3	90-100	85-100	65-90	40-70	15-30	 NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif:	ication	Fragi	ments			e passi: umber	ng	 Liquid	 Plas-
and soil name	Depth	ODDA CEXCUTE			>10	3-10		sieve ii	uniber			ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In				Pct	Pct	 	 		[Pct	
UeqA:			 		 	 	 	 		 		
Urban land.		İ	İ	İ	İ	ĺ	ĺ	İ	İ	Ì	İ	İ
Gilford	 0-14	 Sandy loam*	 gc_gm* gc	A-2-4*, A-4	 0	 0	 05_100	 95_100	 55-85	25_45	15-25	 NP-10
GIIIOId	0-14		SM									NF-10
	14-32	Sandy loam*, fine		A-2-4*	0	0	95-100	95-100	55-90	25-50	15-30	NP-10
	 32-38	sandy loam.	SM SP,	A-2-4*,	 0	 0	 95-100	 95-100	 40-95	 0-25	0-0	 NP
		sand, loamy fine		A-1-B, A-3						ĺ		İ
		sand.					05 100					
	38-80 	Sand*, coarse sand, loamy	SM*, SP,	A-2-4*, A-1-B, A-3	0 	0 	 85-100	 85-100	35-85 	0-25	0-0	NP
		sand.	ĺ			İ		İ	İ	İ	i	İ
UewA:					l I	 	 	 				
Urban land.			 		 	 	 	 		 		
İ		İ	İ	i					İ	İ	į	İ
Brems		Loamy sand*		A-2-4*	0 0	0 0	'	'	60-100 60-100		0-0	NP NP
		Sand*, fine sand,		A-2-4*, A-3		0	100		55-95		0-0	NP
		loamy sand.	SM	į	ĺ	ĺ	ĺ	ĺ	į	į	į	į
	72-80	Sand*, fine sand, loamy sand.	SP*, SP-SM,	A-2-4*, A-3	0	0	100	85-100	55-95	0-25	0-0	NP
		Toally saild.	5m				 					
Morocco		Loamy sand*		A-2-4*	0	0	'		75-95		0-0	NP
	9-60	Sand*, fine sand, loamy fine sand,	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
		loamy sand.										
	60-80	Sand*, fine sand	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
UfbA:			 		 	 	 	 		 		
Urban land.			İ	İ						İ	İ	
Dwoolegton		 Teem#		13 4			05 100					 ND 17
Brookston	0-9 	Loam*	ML	A-4*, A-6	0 	0 	95-100	 	85-95 	55-75	20-40	NP-17
İ	9-48	Clay loam*, silty	CL*	A-6*, A-7-6	0	0	98-100	85-100	75-100	55-90	25-50	12-33
	40 60	clay loam, loam. Loam*, fine sandy		 A-4*, A-6	 0-1		00 100	05 100			 15-40	 NP-22
	40-00	loam.	ML, SC	A-4", A-0	0-1	0-3	30-100	83-100		40-70		NF-22
	68-80	Loam*, fine sandy		A-4*, A-6	0-1	0-3	90-100	85-100	65-90	40-70	15-30	NP-15
		loam.	ML, CL, SC		 	 	 	 		 		
UfhA:			İ									
Urban land.												
Coloma	 0-12	 Sand*	SP-SM*, SM,	A-2*, A-3	 0	 0-5	 75-100	 75-100	 50-70	 2-15	0-14	 NP
			SP							ĺ		İ
	12-47	Sand*, loamy sand.	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-75	2-30	0-14	NP
	 47-80	•	SP-SM*, SM,	A-2*, A-3,	 0	 0-5	 75-100	 75-100	 50-100	2-40	0-14	 NP
İ		sand.	SP	A-4					İ	İ	į	İ
UfhB:			l I		 	 	 	 		 		
Urban land.										ĺ		
~ ·			lan arr									
Coloma	0-12 	Sand*	SP-SM*, SM,	A-2*, A-3	0 	0-5 	75-100 	75-100 	50-70 	2-15 	0-14	NP
	12-47	Sand*, loamy	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-75	2-30	0-14	NP
		sand.	SP SW+ SW									
	47-80 	Sand*, loamy sand.	SP-SM*, SM,	A-2*, A-3,	0 	U-5 	/5-100 	/5-100 	50-100 	2-40	0-14	NP
			I	i -				İ	i	i	i	i

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi	.cation	Fragi	ments		rcentag sieve n	e passi: umber	ng	 Liquid	 Plas-
and soil name					>10	3-10				1 202	limit	ticity
	l In	1	Unified	AASHTO	Inches	inches Pct	4	10	40	200	 Pct	index
	-11					FCC	 					
UfhC:			ĺ	Ì	ĺ			ĺ	ĺ	ĺ	ĺ	
Urban land.												
Coloma	 0-12	 Sand*	 SP-SM*.SM.	A-2*, A-3	 0	 0-5	 75-100	 75-100	 50-70	 2-15	0-14	 NP
00101114	0 ==		SP								0 ==	
	12-47	Sand*, loamy	SP-SM*, SM,	A-2*, A-3	0	0-5	75-100	75-100	50-75	2-30	0-14	NP
		sand.	SP									
	47-80 	Sand*, loamy	SP-SM*, SM,	A-2*, A-3,	0 	0-5 	75-100 	75-100 	50-100	2-40	0-14	NP
					İ	 			İ	İ	i	
UfmA:			ĺ	Ì	l			ĺ	Ī	Ī	I	
Urban land.							l					
Coupee	 0-21		CL*. ML	A-6*, A-4	 0	l I 0	100	100	 95-100	 75-100	 26-39	 2-15
ccupcc		Clay loam*, loam		A-6*, A-7	0		'	'	85-95			5-30
	33-52	Stratified loamy	SM*, SP-SM	A-3*, A-2-4	0	0-1	85-100	75-98	35-85	0-25	0-0	NP
		sand to sand to										
	 52_08	coarse sand*.	SW-SM*, SW	 A-1-a*	 0-2	 0-5	 45_100		 10-85	 0-15	0-0	 NP
	52-96	coarse sand*,	54-54", 54	A-1-a"	0-2 	0-3		23-98		0-15	0-0	NF
		fine sand, sand.	İ	j	İ	İ	İ	į	İ	İ	į	İ
_			!	!					ļ	ļ		
UfrA: Urban land.			l I	1	 	 	l I	 	 	 	 	
ordan rand.					 	 	 					
Del Rey	0-9	Silty clay loam*	CL*	A-6*, A-7	0	0	95-100	95-100	90-100	70-95	30-45	10-25
	9-33	Silty clay*,	CH*, CL	A-7*	0	0	95-100	95-100	90-100	85-95	40-55	20-30
	22 00	silty clay loam. Silty clay loam*,		A-6*, A-7	 0	 0	 05 100	 05 100	 90-100	70 05	20 45	 10-25
	33-30	silt loam.		A-0", A-7	0	0 	33-100			70-33 		10-23
		İ	İ	İ	į	İ	İ	i	i	i	i	İ
UftA:			ļ.						[[
Urban land.			l I	1	 	 	 		 	 		
Elston	 0-20	Sandy loam*	SC-SM*, SM	 A-2-4*, A-4	 0	l 0	 85-100	 85-100	 60-80	 25-40	0-25	 NP-10
		Sandy loam*		A-4*, A-2-4		•	'		60-80		10-60	NP-20
	34-72	Loamy sand*,	SM*, SP-SM	A-2-4*,	0-1	0-3	85-100	85-100	45-85	10-40	0-30	NP-10
	72 00	sandy loam. Sand*, gravelly	GD GW+ GW	A-1, A-2 A-2-4*,	 0-1		 65 100	 50-98	115 00	 0-15	0-0	 NP
	72-80 	sand, gravelly	SP-SM*, SM	A-1-B, A-3	'	U-3 	 65-100	50-96		0-15	0-0	NP
		İ	İ	İ	İ	İ		İ	İ	İ	į	İ
UfzA:												
Urban land.			 	1	l I	 	 	 	l I	l I	 	
Mishawaka	 0-12	Sandy loam*	SM*, SC,	 A-2-4*, A-4	0	0	 80-100	 75-100	 60-90	25-40	15-25	 NP-10
		i	SC-SM	İ	İ	İ		İ	İ	İ	į	İ
	12-18	Sandy loam*		A-2-4*, A-4	0	0	80-100	75-100	60-90	25-40	15-25	NP-10
	 18-25	 Gravelly loamy	SM SM, SC,	 A-2-4*	 0	 0	 55-100	 50-100	 40-85	 10-25	0-25	 NP-10
	10-23	sand*, loamy	SC-SM	A-1-B					=0-05	1 10-23	0-25	112-10
		sand, sandy	İ	İ	İ			İ	İ	İ	İ	İ
		loam.										
	25-58	Sand*, fine sand	SP-SM*, SM	A-2-4*, A-1-B, A-3	0	0	80-100	75-100	30-80	5-35	0-0	NP
	 58-80	Sand*, coarse	SP-SM*, SM	A-1-B, A-3	 0	 0	 80-100	 75-100	 30-70	 0-15	0-0	 NP
	İ	sand.	į	A-1-B, A-3	'			j	İ	İ	i	İ

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classifi	cation	Fragi	ments		rcentago sieve n			 Liquid	 Plas-
and soil name	ļ.	ļ		!	>10	3-10	ļ				limit	-
	<u> </u>		Unified	AASHTO		inches	4	10	40	200		index
	In				Pct	Pct					Pct	
UgaA:	 	 	 	1	 	 	 	l I	 		1	l I
Urban land.	 		 		 	 	 	 	i I	1	1	
012411 141141					! 		! 		İ	i	i	!
Morocco	0-9	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	100	98-100	75-95	10-25	0-0	NP
	9-60	Sand*, fine sand,	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0 - 0	NP
		loamy fine sand,	!						!	1	1	
		loamy sand.										
	60-80	Sand*, fine sand	SP-SM*, SM	A-2-4*, A-3	0	0	100	98-100	70-95	0-25	0-0	NP
UglA:	 	 	 		 	 	 	 	 		i	
Urban land.					! 		! 	 	İ	i	i	!
	İ	İ	İ	İ	İ	İ		İ	į	į	i	İ
Osolo	0-9	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	90-100	85-100	70-90	10-25	0-0	NP
		Loamy sand*		A-2-4*	0	,	'	85-100			0-0	NP
	25-40	Sand*, fine sand		A-2-4*, A-3	0	0	90-100	85-100	55-95	0-15	0-0	NP
	40 00	 Fine sand*, sand	SP	 A-2-4*, A-3	 0	 0	 00 100	 85-100	 EE 0E	0-15	0-0	 NP
	40-60	rine sand", sand	SP SM", SM,	A-2-4", A-3	U	U	30-100	83-100	33-33	0-13	0-0	NF
					! 		! 	 	İ	i	i	!
UgrA:	į	İ	İ	İ	İ	İ	İ	İ	į	į	į	İ
Urban land.												
Rensselaer	0-15	Loam*	:	A-6*, A-4	0	0	95-100	90-98	75-85	50-65	20-40	3-20
	1 1 5 2 0		ML	3 6	 0	 0		 75 100	 60 0E	 50-75		 5-30
		Clay loam*, loam Loam*, sandy clay		A-6*, A-4 A-4*, A-6,	0 0	,	'	75-100			20-30	5-30 NP-20
	55 12	loam, sandy	SC, SC-SM,	A-2-4,	 							
	İ	loam.	SM, ML	A-2-6	İ	İ	İ	İ	İ	i	i	İ
	42-76	Stratified fine	SM*, SP-SM,	A-4*,	0	0	95-100	90-100	55-95	0-85	0-40	NP-15
		sand to silt	ML, CL,	A-2-6,								
		loam*.	CL-ML, SP	A-6, A-3,								
	 76 00	 Loam*, fine sandy	CT MT+ CM	A-2-4 A-4*, A-6	 0-1	03	 00 100	 05 100	 65 00	40-70	115 20	 NP-15
	70-80 	loam.	SC, ML, CL	A-4", A-0	U-1	0-3 	30-100	83-100	63-30	40-70	13-30	NF-13
	İ				i I	İ	' 	İ	i	i	i	İ
UgsA:	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ	İ
Urban land.												
Riddles	1	Fine sandy loam* Sandy clay loam*,		A-4* A-6*, A-4	0 0		'			40-55 40-70		NP-10 NP-30
	0-13	loam, fine sandy		A-0^, A-4	l O	U	90-100	80-100	/3-95 	40-70	10-50	NP-30
	İ	loam.			i I	İ	' 	İ	i	i	i	i I
	13-33	Clay loam*, loam,	CL*, SC,	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.	SC-SM, CL-ML									
	33-63	Fine sandy loam*,		A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
		sandy loam,	ML, CL-ML									
	 63-00	loam. Loamy sand*,	SC-SM*, SC,	 A-2-4*, A-4	 0	 0	 80-100	 78 - 99	 55-25	10-40	 17-27	 NP-10
	03-30	sandy loam.	SP-SM, SM	A-4	, 0 	, 0	 	10-36 		110-40	- 1 - 2 1	ME-10
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	 NP-15
	ĺ	loam.	CL-ML, CL	İ		ĺ			ĺ	İ	İ	

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi	cation	Fragi		'	rcentag sieve n	-	-	 Liquid	
and soil name	 	[[Unified	AASHTO	>10 inches	3-10		10	40	200	limit	ticity
	In		İ	İ	Pct	Pct	<u>.</u> 	İ	İ	İ	Pct	İ
		İ	İ	ĺ	ĺ		ĺ	ĺ	Ī	İ	ĺ	
UgsA:			1									
Oshtemo	0-9	Fine sandy loam*		A-2-4*	0	'	80-100	'			0-0	NP
	9-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
	l I	sandy loam,	 	 	l I	l I	 	l I	l I	I	l I	l I
	 14-35	Sandy loam*,	SC-SM*, CL,	 A-2-4*,	l 0	l 0	80-100	 80-95	45-80	20-50	10-50	 NP-20
		gravelly sandy	SC, SM	A-4, A-6	İ	İ						
		loam, sandy clay	İ	ĺ	ĺ		ĺ	ĺ	ĺ	İ	ĺ	
		loam, gravelly	1									
		sandy clay loam,	1									
		fine sandy loam.										
		Loamy sand*		A-2-4*	0 0-1	0	100			15-35	0-14	NP
	60-80 	Stratified gravelly coarse	SP-SM*, SW,	A-1*	0-1	U-5 	55-85	35-85	10-50	0-15	0-0	NP
		sand to coarse	54-54	 	 	 	 	 	i	İ	1	
	l	sand to sand to	İ		 	! 		! 	İ	i	İ	İ
	İ	gravelly sand*,	i	İ	İ	İ	i	İ	i	i	İ	İ
		very gravelly	İ	ĺ	ĺ		ĺ	ĺ	ĺ	İ	ĺ	
		coarse sand.	[1			
UgsB: Urban land.			<u> </u>	 	 	 		 	 			
Riddles	 0-8	 Fine sandy loam*	 SC-SM* SM	 A-4*	 0	 0	 95-100	 80-100	 75-90	 40-55	15-30	 NP-10
KIUUIES	'	Sandy clay loam*,		A-6*, A-4	0	'	'	'		40-70		NP-30
		loam, fine sandy			İ							
	İ	loam.	İ	Ì	İ	İ	į	İ	į	İ	İ	İ
	13-33	Clay loam*, loam,	CL*, SC,	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.		•					!		!	
	33-63	Fine sandy loam*,		A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
	l	sandy loam,	ML, CL-ML		 	 		 			1	
	 63-90	Loamy sand*,	SC-SM*, SC,	 A-2-4*, A-4	 0	l 0	 80-100	 78 - 98	 55-85	10-40	17-27	 NP-10
	03-30	sandy loam.	SP-SM, SM	A-2-4", A-4	0	0		70-30 	55-65	1	17-27	NF-IC
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
		loam.	CL-ML, CL		į	İ	į	į	į	į	į	į
Oshtemo	 0-9	 Fine sandy loam*	SM*, SP-SM	 A-2-4*	 0	 0	 80-100	 80-100	 55-80	10-25	0-0	 NP
	9-14	Fine sandy loam*,	SM*, SP-SM	A-2-4*	0	0	80-100	80-100	55-80	10-25	0-0	NP
		sandy loam,	1									
		loamy sand.	1									
	14-35	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
			SC, SM	A-4, A-6								
	l I	loam, sandy clay loam, gravelly	 	 	l I	l I	 	l I	l I	1		l I
	l I	sandy clay loam,		 	l I	l I	 	l I	I I	1	i i	1
	İ	fine sandy loam.		İ	İ	İ	i	İ	<u>'</u>	i	i	İ
	35-60	Loamy sand*		A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM									
		sand to coarse	!	!	ļ.				[!	
		sand to sand to							I		1	
	l I	gravelly sand*,				 			I		1	1
	l I	very gravelly coarse sand*.	I I	I I	I I	l I	I I	l I	I I	I	I	I I
	1	Coarse Sand".	I I	I I	I I	l I	1	I I	I I	1	I I	1

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classif	ication	Fragi	ments	'	rcentag sieve n			 Liquid	 Plas-
and soil name		 	Unified	AASHTO	>10 inches	3-10	 4	10	40	200	limit	ticity
	l In	1	Unitied	AASHIO	Pct	Pct	*	1	40	1 200	Pct	Index
		İ	İ	İ				İ	i	i		İ
UgvA:												
Urban land.												
Tyner	 0-12	 Loamy sand*	 SM*.SP-SM	 A-2-4*	 0	l l 0	 90-100	 85-100	 55-85	10-25	0-0	 NP
Tynci		Loamy sand*,	SM*, SP-SM	A-2-4*	0		90-100	'			0-0	NP
j		loamy fine sand.	İ	j	İ		İ	İ	İ	į	İ	İ
	20-41	Sand*, fine sand,		A-2-4*, A-3	0	0	90-100	85-100	55-85	0-25	0-0	NP
	41 00	loamy sand.	SP									
	41-80 	Sand*, coarse sand, fine sand.	SP-SM*, SM, SP	A-2-4*, A-1-B, A-3	0 	0 	90-100	 85-100	35-95	0-15	0-0	NP
		sand, line sand.	51	K-1-B, K-5	 		 	 	i I	1		
UgvB:		İ	İ	j	İ		İ	İ	İ	į	İ	İ
Urban land.				ļ								
m										110.05		
Tyner		Loamy sand*	SM*, SP-SM	A-2-4*	0 0		90-100 90-100	'			0-0	NP NP
		loamy fine sand.				İ						
j	20-41	Sand*, fine sand,	SP-SM*, SM,	A-2-4*, A-3	0	0	90-100	85-100	55-85	0-25	0-0	NP
		loamy sand.	SP									
	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
		sand, fine sand.	SP	A-1-B, A-3	 		 	 	l I	1	1	
UgvC:					 		 	 	 			
Urban land.		İ	İ	j	İ		İ	İ	İ	į	İ	İ
				ļ								
Tyner		Loamy sand*		A-2-4*	0		90-100	'			0-0	NP
	12-20 	Loamy sand*,	SM*, SP-SM	A-2-4*	0 	0 	90-100	 85-100	55-95	10-25	0-0	NP
	20-41	Sand*, fine sand,	SP-SM*, SM,	A-2-4*, A-3	0	0	90-100	 85-100	 55-85	0-25	0-0	NP
		loamy sand.	SP	į	İ		İ	İ	i	i	i	İ
	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
		sand, fine sand.	SP	A-1-B, A-3								
UgvD:		 	l I	l I	 		 	l I	l I	1	I I	
Urban land.					! 		 	 	i I		İ	!
		İ	İ	į	İ		İ	İ	i	i	i	İ
Tyner	0-12	Loamy sand*	SM*, SP-SM	A-2-4*	0	0	90-100	85-100	55-85	10-25	0-0	NP
	12-20	Loamy sand*,	SM*, SP-SM	A-2-4*	0	0	90-100	85-100	55-95	10-25	0-0	NP
	 20_41	loamy fine sand. Sand*, fine sand,	 cp_cm* cm	A-2-4*, A-3	 0	l l 0	 90-100	 85_100	 55_85	0-25	0-0	 NP
	20-41	loamy sand.	SP SP	A-2-4", A-3	0 	0	30-100	 	33-63	0-25	0-0	NF
	41-80	Sand*, coarse	SP-SM*, SM,	A-2-4*,	0	0	90-100	85-100	35-95	0-15	0-0	NP
ĺ		sand, fine sand.	SP	A-1-B, A-3					1			
**1 3												
UhmA: Urban land.		 	l I	I I	l I		 	l I	l I		I	l I
orban rana.					! 		 	 	i I		İ	!
Hillsdale	0-8	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
		ļ	SC-SM	ļ.			l	ļ.		1	[
	8-14	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
	 14-44	 Sandy loam*	SC-SM*. SC	A-4*, A-2-4	 0	 0	 95_100	 90-100	 75-95	25-40	 15-50	 NP-30
		Sandy loam*		A-2-4*	0		'	'		25-40		NP-30 NP-10
		į	SC-SM	i	İ			İ	i	i	į	İ

Table 16.--Engineering Index Properties--Continued

Man armit - 1	Dert		Classifi	cation	Fragi	ments		rcentag			 	
Map symbol and soil name	Depth	USDA texture	l		 >10	3-10		sieve n	umber		Liquid	Plas- ticity
and soil name			Unified	AASHTO	'	inches	4	10	40	200		index
	In	İ	İ	İ	Pct	Pct	İ			İ	Pct	İ
!		!	!	ļ			ļ.	ļ.		1		ļ.
UhmB: Urban land.		1			 	 	 	 	 			
orban rand.			 		 	 	 	 	 			
Hillsdale	0-8	Sandy loam*	SM*, SC,	A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	70-90	25-40	 15-25 	 NP-10
j	8-14	Sandy loam*	SM*, SC,	A-4*, A-2-4	0	0	95-100	90-100	75-95	20-50	15-25	NP-10
Į.		Sandy loam*		A-4*, A-2-4	0	'	1	90-100			'	NP-30
	44-84	Sandy loam* 	SM*, SC, SC-SM	A-2-4*	0 	0-1 	90-100 	75-98 	55-85 	25-40	15-25	NP-10
UhoC:			 				 	 	! 			
Urban land.		 	 	i I	 	 	 	 	 	į I	į į	
Hillsdale	8 - 0	Sandy loam*	SM*, SC, SC-SM	A-4*, A-2-4	0 	0 	95-100 	90-100 	70-90 	25-40 	15-25 	NP-10
		Sandy loam*	SC-SM	A-4*, A-2-4	0 	0 	95-100 	90-100 	75-95 	20-50	15-25 	NP-10
		Sandy loam*		A-4*, A-2-4		'	'	90-100				NP-30
	44-84	Sandy loam* 	SC-SM	A-2-4*	0 	U-I	90-100 	75-98 	55-85	25-40	15-25	NP-10
Oshtemo	0-9	Sandy loam*	 SM*, SC, SC-SM	A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	 70-90 	25-40	15-25	NP-10
į	9-14	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		loamy sand, fine sandy loam.	SC, SM 	A-4, A-6	 	 	 	 	 			
	14-35	Sandy loam*, gravelly sandy loam, sandy clay loam, gravelly sandy clay loam, fine sandy loam.	 	A-2-4*, A-4, A-6 	0 	0 	80-100 	80-95 	45-80 	20-50 	10-50 	NP-20
į	35-60	Loamy sand*	SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified gravelly coarse sand to coarse sand to sand to gravelly sand*, very gravelly coarse sand.	SP-SM*, SW, SW-SM 	A-1* 	0-1 	0-5 	55-85 	35-85 	10-50 	0-15 	0-0	NP
UhoD: Urban land.		 	 -		 	 	 	 	 	 	 	
 Hillsdale 	0 - 8	 Sandy loam*	 SM*, SC, SC-SM	 A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	 70-90 	 25-40 	 15-25 	 NP-10
	8-14	Sandy loam*		A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	75-95	20-50	15-25	 NP-10
ľ	14-44	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	75-95	25-40	15-50	NP-30
İ	44-84	Sandy loam*	SM*, SC,	A-2-4*	0	0-1 	90-100 	75-98	55-85 	25-40 	15-25 	NP-10

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif:	lcation	Fragi	ments		rcentago sieve no		ng	Liquid	 Plas-
and soil name	2 op on				>10	3-10					limit	
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In	ļ.	ļ.	[Pct	Pct		[<u> </u>		Pct	
UhoD:		l I	 		 	 	 	 	 		1	
Oshtemo	0 - 9	Sandy loam*	 SM*, SC, SC-SM	A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	 70-90 	25-40	15-25	 NP-10
İ	9-14	Sandy loam*, loamy sand, fine	SC-SM*, CL,	A-2-4*,	0 	0 	 80-100 	80-95 	 45-80 	20-50	10-50	NP-20
	14 25	sandy loam.										
	14-35	Sandy loam*, gravelly sandy loam, sandy clay loam, gravelly sandy clay loam,	İ	A-2-4*, A-4, A-6 	0 	0 	80-100 	80-95 	45-80 	20-50	 	NP-20
		fine sandy loam.	İ		İ	İ	İ	İ	İ	İ	i	
I	35-60	Loamy sand*	SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified gravelly coarse sand to coarse sand to sand to gravelly sand*, very gravelly coarse sand.	SP-SM*, SW, SW-SM 	A-1* 	0-1 	0-5 	55-85 	35-85 	10-50 	0-15 	0-0 	NP
UhpC:		 	 		 	 	 	 	 			
Urban land.		 	 -	İ	 	i I	 	 	 		İ	
Hillsdale	0-8	Sandy loam*	SM*, SC,	A-4*, A-2-4	0 0	, 0 	95-100	90-100	70-90	25-40	15-25	NP-10
		Sandy loam*	SC-SM	A-4*, A-2-4	0 	İ		90-100 		İ	İ	NP-10
		Sandy loam*	•	A-4*, A-2-4 A-2-4*	0 0 		'	90-100 75-98 	'			NP-30 NP-10
Tracy	0-5	 Sandy loam*	 SC-SM*, SM, SC	 A-2-4*, A-4	 0 	 0 	 80-100 	 75-98 	 60-80 	 25-40 	0-25	 NP-10
	5-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0 	0 	 85-100 	75-98	 55-90 	25-60	10-40	NP-20
	47-60	Gravelly sandy clay loam*, gravelly loamy sand.	SC*, SC-SM, SM, SP-SM 	A-6*, A-4, A-2-4	 0 	0-1 	 60-90 	 50-75 	30-70 	10-60 	0-40	NP-20
	60-86	Stratified loamy sand to gravelly sand*.	SM*, SP-SM 	A-3*, A-1-B, A-2-4	0-1 	0-3 	 65-100 	 50-98 	 15-85 	0-25	0-0	NP
UhpD: Urban land.		 	 		 	 	 		 			
Hillsdale	0-8	 Sandy loam* 	 SM*, SC, SC-SM	 A-4*, A-2-4	 0 	 0 	 95-100 	 90-100 	 70-90 	25-40	15-25	 NP-10
	8-14	Sandy loam*		A-4*, A-2-4	 0 	 0 	95-100	90-100	75-95	20-50	15-25	 NP-10
i	14-44	Sandy loam*	SC-SM*, SC	A-4*, A-2-4	0		'	90-100	'			NP-30
	44-84	Sandy loam*	SM*, SC, SC-SM	A-2-4*	0 	0-1 	90-100 	75-98 	55-85 	25-40 	15-25 	NP-10

Table 16.--Engineering Index Properties--Continued

### And soil name	Classif	ication	Fragi	ments		rcentag sieve n	e passinumber		 Liquid	 Plas-
UhpD: Tracy			>10	3-10	ļ				limit	ticity
UhpD: Tracy	Unified	AASHTO	inches Pct	inches Pct	4	10	40	200	Pct	index
Tracy			PCC 	PCL	 	 		 	PCL 	
5-47 Sandy loam*, loam. 47-60 Gravelly sand clay loam*, gravelly loam sand. 60-86 Stratified lo sand to grav sand*. UhwA: Urban land.	į	İ					ĺ		ĺ	ĺ
loam. 47-60 Gravelly sand clay loam*, gravelly loam sand. 60-86 Stratified lo sand to grav sand*. UhwA: Urban land. Urban land. 13-35 Clay loam*, s clay loam. 35-53 Sandy clay lo sandy loam, loam. loam. 53-60 Stratified said loam to loam silt loam*. UhwB:	SC-SM*, SM,	A-2-4*, A-4	0 	0 	80-100 	75-98 	60-80 	25-40 	0-25	NP-10
47-60 Gravelly sand clay loam*, gravelly loam sand. 60-86 Stratified lo sand to grav sand*. UhwA:	SC-SM*, CL,	A-4*, A-6	0	0	85-100	75-98	55-90	25-60	10-40	NP-20
	ML, SM									
gravelly load sand. sand. 60-86 Stratified lo sand to grav sand*.	y SC*, SC-SM, SM, SP-SM	A-6*, A-4,	0 	0-1 	60-90 	50-75 	30-70 	10-60 	0-40 	NP-20
60-86 Stratified lo sand to grav sand*.	'	į		İ	İ	İ	İ	İ	İ	İ
sand to grav sand*. UhwA:	omr CM+ CD CM	 A-3*,	 0-1	0.2	 65-100	 E0 00	15 05	 0-25	 0-0	 NP
UhwA:	- '	A-1-B,	0-1	0-3		30-38		0-25	0-0	NF
Urban land.	į	A-2-4					ĺ		ĺ	ĺ
Urban land.		l	 	 	 	 	 	 	 	
13-35 Clay loam*, s		i								
13-35 Clay loam*, s										
35-53 Sandy clay lo sandy loam, loam. 53-60 Stratified sa loam to loam silt loam*.		A-4* A-6*, A-4	0 0	'		'	75-85 60-95			5-20 5-30
sandy loam, loam. loam. 53-60 Stratified sa loam to loam silt loam*.	sc	İ	ĺ	İ	İ	İ	İ	İ	İ	İ
loam. 53-60 Stratified sa loam to loam silt loam*.	am*, CL-ML*, CL, SC, SC-SM	A-6*, A-4	0	0-1	85-100	75-100	60-95	40-60	10-60	NP-20
loam to loam silt loam*.	50, 50-51									
silt loam*.	- '	A-4*, A-2-4	0-1	0-3	90-100	85-100	55-100	0-100	0-40	NP-15
UhwB:	to SM, SP-SM	l I	 	 	 	 	 	 	 	
Urban land.										
l İ			 	 	 	 	 	 	 	l I
·	CL*, CL-ML	A-4*	0	'		'	75-85			5-20
5-35 Clay loam*, s clay loam.	andy CL-ML*, CL, SC	A-6*, A-4	0	0	85-100	75-100	60-95	40-75	20-60	5-30
35-53 Sandy clay lo		A-6*, A-4	0	0-1	 85-100	 75-100	 60-95	40-60	10-60	 NP-20
sandy loam,	SC, SC-SM									
loam. 53-60 Stratified sa	 ndy CL*, CL-ML,	A-4*, A-2-4	 0-1	 0-3	 90-100	 85-100	 55-100	 0-100	0-40	 NP-15
loam to loam	to SM, SP-SM	İ	ĺ		İ		İ	İ	İ	İ
silt loam*.			 	l I	 	 	 	 	 	
UhwC:										
Urban land.										
 Martinsville 0-5 Loam*	CL*, CL-ML	A-4*	 0	 0	 90-100	 90-98	 75-85	 50-65	 20-40	 5-20
5-35 Clay loam*, s		A-6*, A-4	0	0	85-100	75-100	60-95	40-75	20-60	5-30
clay loam. 35-53 Sandy clay lo	SC	A-6*, A-4	 0	 0-1	 85-100	 75-100	 60-95	 40-60	 10-60	 NP-20
sandy loam,	SC, SC-SM		"							
loam.	DC/ DC DM	1				I				l
·	i									
silt loam*.	ndy CL*, CL-ML,	 A-4*, A-2-4	0-1	 0-3 	 90-100 	 85-100 	55-100 	0-100	0-40	NP-15
 UkaA:	i	 A-4*, A-2-4 	 0-1 	 0-3 	 90-100 	 85-100 	55-100 	0-100 	0-40 	NP-15
Urban land.	ndy CL*, CL-ML,	 A-4*, A-2-4 	 0-1 	 0-3 	 90-100 	 85-100 	55-100 	0-100 	0-40 	NP-15
	ndy CL*, CL-ML,	 A-4*, A-2-4 	0-1 	 0-3 	 90-100 	 85-100 	55-100 	0-100 	0-40 	NP-15 -
Maumee 0-23 Loamy sand* 23-61 Sand*, loamy	ndy CL*, CL-ML, to SM, SP-SM			 	 	 	 	 	 	 -
sand, fine s	ndy CL*, CL-ML, to SM, SP-SM SM*, SP-SM	 A-2-4*		 	 95-100	 90-100	 60-95	 	0-40 0-0 0-0	NP-15 - NP NP
61-80 Sand*, coarse sand, fine s	ndy CL*, CL-ML, to SM, SP-SM SM*, SP-SM fine SP*, SP-SM, and. SM			 	 95-100 100	 90-100 98-100	 60-95 70-95	 10-25 0-25	 0-0 0-0	 - NP NP
	ndy CL*, CL-ML, to SM, SP-SM SM*, SP-SM fine SP*, SP-SM, and. SM SP*, SP-SM	 		 	 95-100 100	 90-100	 60-95 70-95	 10-25	 0-0 0-0	 - NP
UkeA:	ndy CL*, CL-ML, to SM, SP-SM SM*, SP-SM fine SP*, SP-SM, and. SM SP*, SP-SM	 A-2-4* A-2-4*, A-3		 0	 95-100 100	 90-100 98-100	 60-95 70-95	 10-25 0-25	 0-0 0-0	 - NP NP
Urban land.	ndy CL*, CL-ML, to SM, SP-SM SM*, SP-SM fine SP*, SP-SM, and. SM SP*, SP-SM	 		 0	 95-100 100	 90-100 98-100	 60-95 70-95	 10-25 0-25	 0-0 0-0	 - NP NP

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classif	ication	Fragi		'	rcentag sieve n	e passin umber	_	 Liquid	
and soil name			Unified	AASHTO	>10 inches	3-10 inches	 4	10	40	200	limit 	ticity index
	In	Ī	İ	İ	Pct	Pct	l	İ	Ī	Ī	Pct	İ
UkeA:							100					
Milford		Silty clay loam*		A-6*, A-4 A-7*	0 0	0 0	'		90-100			5-20
	10-50 	Silty clay*, silty clay loam,	CH*, CL	A - / *	1	U	1 100	132-100	90-100	/5-100 	140-60	20-40
		clay loam.	 		 	 	 	 	i I	l I	i i	
	50-60		CL*, SC	A-7*, A-6	0	0	 95-100	95-100	90-100	45-100	25-50	10-30
		loam to silty			İ		İ	İ	ĺ	İ		į
		clay loam to	ĺ	İ	İ	İ	İ	į	į	İ	į	į
		silty clay*.		1								
			!						[!		
UkxA: Urban land.		 	 		 	 	 	 	 	 	 	
Oshtemo	0-9	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
	 0.14		SC-SM*, CL,	A-2-4*,	 0	 0	 00 100		 45-80		110 50	 NP-20
	9-14 	loamy sand, fine		A-4, A-6	U	l C	80-100 	80-95	43-80	20-30 	10-30	NF-20
		sandy loam.		,	 	! 	! 		İ	İ	İ	i
	14-35		SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		gravelly sandy	SC, SM	A-4, A-6	İ	İ	İ	į	İ	İ	į	į
		loam, sandy clay										
		loam, gravelly	!						[[
		sandy clay loam,										
	35 60	fine sandy loam. Loamy sand*	CM+	A-2-4*	 0	 0	 100	 100	 50-80	115 25	0-14	 NP
			SP-SM*, SW,	A-1*	0 0-1		100 55-85	'		0-15	0-14	NP
	00 00	gravelly coarse			0 1	03	33 03		10 30	0 13	0 0	111
		sand to coarse	İ	i	İ	İ	İ	i	İ	İ	i	i
		sand to sand to	ĺ	İ	ĺ		ĺ	ĺ	ĺ	ĺ	İ	ĺ
		gravelly sand*,										
		very gravelly										!
		coarse sand.	 	l I	 	 	 		 	 		
UkxB:												
Urban land.						 						
Oshtemo	 0-9		 sw* sc	 A-4*, A-2-4	 0	 0	 95-100	 90 - 100	 70-90	 25-40	 15-25	 NP-10
OBITECINO	0 5	Janay Ioam	SC-SM			l			70 30			111 10
	9-14	Sandy loam*,	SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
		loamy sand, fine	SC, SM	A-4, A-6	İ	İ	İ	į	İ	İ	į	į
		sandy loam.										
	14-35		SC-SM*, CL,	A-2-4*,	0	0	80-100	80-95	45-80	20-50	10-50	NP-20
			SC, SM	A-4, A-6								
		loam, sandy clay loam, gravelly	1	I	 	 	 		 	 	1	
		sandy clay loam,	 		 	 	 	 	 	 	i i	1
		fine sandy loam.	İ								İ	İ
	35-60	Loamy sand*	SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM						[[
		sand to coarse										
		sand to sand to	1		 	l I	 	1	[[[[I	I
		gravelly sand*, very gravelly	I I	I	I I	l I	l I	I I	I I	I I	I	I I
		coarse sand.	I I		l I	ı İ	l I	 	I I	I I		İ
			İ		İ	i I	l		İ	İ	i	i

Table 16.--Engineering Index Properties--Continued

			Classifie	cation	Fragi	ments	Pe	rcentage	e passi	.ng		
Map symbol	Depth	USDA texture					:	sieve n	umber		Liquid	Plas-
and soil name					>10	3-10	l				limit	ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In				Pct	Pct					Pct	
UkxC:												
Urban land.									!			!
Oshtemo	0-9	Sandy loam*		A-4*, A-2-4	0	0	95-100	90-100	70-90	25-40	15-25	NP-10
	0.14	Conder loom#	SC-SM SC-SM*, CL,	 A-2-4*,	l l 0	 0			 4E 80	20-50	110 50	 NP-20
	9-14	Sandy loam*, loamy sand, fine		A-2-4~,	0	0	80-100	60-95	45-60	20-50	10-50	NP-20
	 	sandy loam.	SC, SM	A-4, A-0		l I	l I	l I	I I	I		l I
	 14-35		SC-SM*, CL,	A-2-4*,	l 0	l 0	 80-100	 80-95	45-80	20-50	10-50	 NP-20
	== 00	:		A-4, A-6	,				13 00	1		111 20
	' 	loam, sandy clay		,, 		İ	İ	İ	İ	i	i	i
	İ	loam, gravelly	İ	İ		İ	İ	İ	i	i	i	i
	İ	sandy clay loam,	İ	İ		i	İ	İ	i	i	i	i
	İ	fine sandy loam.	İ	İ		İ	İ	İ	i	i	i	i
	35-60	Loamy sand*	SM*	A-2-4*	0	0	100	100	50-80	15-35	0-14	NP
	60-80	Stratified	SP-SM*, SW,	A-1*	0-1	0-5	55-85	35-85	10-50	0-15	0-0	NP
		gravelly coarse	SW-SM									
		sand to coarse										
		sand to sand to										
		gravelly sand*,										
		very gravelly										
		coarse sand.							!			!
UmfB: Urban land.	 			1		 	 	 	1			1
orban land.	l I	I	I I	l I		l I	l I	l I	l I	I	I	1
Riddles	 0-8	Fine sandy loam*	SC-SM*.SM	 A-4*	l l 0	l 0	 95-100	 80-100	 75-90	40-55	15-30	 NP-10
112 442 00	'	Sandy clay loam*,		A-6*, A-4	0					40-70		NP-30
		loam, fine sandy		,								
	İ	loam.	İ	İ		i	İ	İ	i	i	i	i
	13-33	Clay loam*, loam,	CL*, SC,	A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
		sandy clay loam.	SC-SM, CL-ML			ĺ	ĺ	ĺ	ĺ	Ì		ĺ
	33-63	Fine sandy loam*,	SC-SM*, SM,	A-4*	0-1	0-3	90-100	80-98	65-90	40-70	15-30	NP-15
		sandy loam,	ML, CL-ML									
		loam.										
	63-90			A-2-4*, A-4	0	0	80-100	78-98	55-85	10-40	17-27	NP-10
			SP-SM, SM									
	90-100	Fine sandy loam*,		A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
		loam.	CL-ML, CL									
		1										
Metea	'	Loamy sand*		A-2-4* A-2-4*	0 0	0 0		95-98 85-98			0-0	NP
	9-28 	Loamy sand*,		A-2-4*	0	0	1 100	85-98	/5-90	0-25	0-0	NP
	I I	sand.	I I	I I		I I	l I	l I	I I	I	1	
	 28-32	Sandy loam*, fine	SC-SM*. SC.	 A-4*, A-2-4	l l 0	 0	 90-100	 75-100	 55-95	25-60	10-60	 NP-20
	20-32	sandy loam,	CL-ML, CL	, A-2-4 	İ	0	50 100	, , 5 · ±00		23-00		112 - 20
	İ	sandy clay loam.				İ	İ	İ	i	i		i
	32-44	Clay loam*, loam		A-6*, A-4	0	0-1	95-100	90-100	85-95	55-80	20-50	5-30
	'	Loam*, fine sandy		A-4*, A-6	0-1					40-70		NP-15
	İ	loam.	ML, SC			İ	İ	İ	i	i	i	i
	I	i	i	i		i	i	i	i	i	i	i

Table 16.--Engineering Index Properties--Continued

Map symbol	 Depth	USDA texture	Classific	cation	Fragi			rcentage sieve n			Liquid	
and soil name	 	 	Unified	AASHTO	>10 inches	3-10 inches	 4	10	40	200	limit	ticity index
	In	İ			Pct	Pct					Pct	
UmfC:	 	 				 	 	 	 			
Urban land.		į							İ	į		ļ
Riddles	 0-5	 Fine sandy loam*	SC-SM*, SM	 A-4*	0	 0	 95-100	 80-100	 75-90	 40-55	15-30	 NP-10
	5-13 	Sandy clay loam*, loam, fine sandy loam.		A-6*, A-4 	0	0 	90-100 	80-100 	75-95 	40-70	10-50	NP-30
	 13-33 	Clay loam*, loam, sandy clay loam.		 A-6*, A-4 	0	 0-1 	 90-100 	 80-100 	 75-95 	40-80	20-50	 5-30
	33-63	Fine sandy loam*, sandy loam, loam.		A-4* 	0-1	0-3	90-100 	 80-98 	 65-90 	40-70	15-30	 NP-15
	63-90	Loamy sand*,	SC-SM*, SC,	A-2-4*, A-4	0	 0 	 80-100 	 78-98 	 55-85 	10-40	17-27	 NP-10
	90-100	Fine sandy loam*, loam.	SC-SM*, SC,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
Metea	0-7	Loamy sand*	 SM*, SP-SM SM*, SP-SM	 A-2-4* A-2-4*	0	 0 0	1	 95-98 85-98		 10-25 0-25	 0-0 0-0	 NP NP
	7-26 	loamy fine sand, sand.		 	U	0 	100 	 	73-30 	0-25		NF
	28-32	Sandy loam*, fine sandy loam, sandy clay loam.	CL-ML, CL	 A-4*, A-2-4 	0	0	 90-100 	 75-100 	 55-95 	25-60	10-60	NP-20
	'	Clay loam*, loam		A-6*, A-4	0	'	95-100	'				5-30
	44-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6 	0-1	0-3 	90-100 	85-98 	65-90 	40-70	15-30	NP-15
UmfD: Urban land.		 	 	 			 	 	 			
Riddles	0-5	Fine sandy loam*	SC-SM*, SM	A-4*	0	0	 95-100	 80-100	 75-90	40-55	15-30	 NP-10
	5-13 	Sandy clay loam*, loam, fine sandy loam.		A-6*, A-4 	0	0 	90-100 	80-100 	75-95 	40-70 	10-50 	NP-30
	13-33	Clay loam*, loam, sandy clay loam.		A-6*, A-4	0	0-1	90-100	80-100	75-95	40-80	20-50	5-30
	33-63 	Fine sandy loam*, sandy loam, loam.		 A-4* 	0-1	0-3 	 90-100 	 80-98 	 65-90 	40-70	15-30	 NP-15
	63-90	Loamy sand*, sandy loam.	SC-SM*, SC,	A-2-4*, A-4	0	0	80-100	 78-98 	 55-85 	10-40	17-27	 NP-10
	90-100	Fine sandy loam*, loam.		 A-4*, A-6 	0-1	0-3	 90-100 	 85-98 	 65-90 	40-70	15-30	 NP-15
Metea	'	Loamy sand*		A-2-4*	0	0	'	95-98			0-0	NP
	7-28 	Loamy sand*, loamy fine sand, sand.	SM*, SP-SM 	A-2-4* 	0	0 	100 	85-98 	75-90 	0-25	0-0	NP
	28-32	Sandy loam*, fine sandy loam,	CL-ML, CL	A-4*, A-2-4	0	0	 90-100 	75-100	55-95	25-60	10-60	NP-20
	32-44	sandy clay loam. Clay loam*, loam		 A-6*, A-4	0	0-1	 95-100	 90-100	 85-95	 55-80	20-50	 5-30
	'	Loam*, fine sandy		A-4*, A-6	0-1		90-100	'				NP-15

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classif	ication	Fragi	nents	'	rcentage sieve n		ng	 Liquid	 Plas-
and soil name	рерсп	ODDA CEXCUTE	Unified		>10	3 10	İ		40		limit	ticity
	In	1	Unified	AASHTO	inches Pct	Pct	4	10	40 	200	 Pct	index
UmpA:			I	1								
Urban land.							 		 			
Schoolcraft	0-14	 Loam*	CL*, CL-ML	A-4*	0	0	 95-100	 85-100	 70-95	 50-75	20-30	 5-10
į	14-29	Sandy clay loam*,	CL*, SC	A-6*, A-7	0	0	90-100	85-100	70-95	35-75	25-45	10-20
I	20.20	clay loam, loam.										
	29-39	Gravelly sandy loam*, gravelly	SC-SM*, SM	A-2-4*	0 	0	 05-T00	55-80 	30-70 	10-35	10-40	NP-20
		loamy sand,	i	İ	İ			İ	İ	İ	i	
İ		gravelly sandy	İ	Ì			l	ĺ	ĺ	ĺ	ĺ	ĺ
		clay loam.										
	39-77	Sand*, fine sand, loamy sand.	SP-SM*, SM, SP	A-2-4*, A-3	0 	0	90-100	85-100	55-85 	0-25	0-0	NP
	77-95		SW-SM*, GP,	A-1-a*,	0	0-5	 45-90	35-85	15-40	0-10	0-0	NP
į		sand*, coarse	SP-SM, SW	A-1-B	ĺ		İ	İ	İ	İ	İ	İ
ļ		sand, sand.	Į.									
UmuA:			 		 		 	 	 	 	 	
Urban land.				İ					İ	İ		İ
Southwest		Silt loam* Silty clay loam*,	•	A-6*, A-4	0 0	0	100 100	'		75-100 75-100		3-15 3-15
	20 20	silt loam.					200					5 25
İ	23-34	Silty clay loam*,		A-6*, A-4	0	0	95-100	92-100	85-100	50-100	20-45	3-33
	24 45	silt loam, loam. Silty clay loam*,		A-6*, A-4,	 0	0	 05 100			 50-100		 3-33
	34-43	silt loam, loam.	•	A-7-6	0 		93-100	92-100			20-45	3-33
į	45-75	Silty clay loam*,	CL*, CL-ML,	A-6*, A-4,	0	0	95-100	92-100	85-100	65-100	25-45	3-28
ļ		silt loam.	ML	A-7-6								
	75-80	Silt loam*, loam, clay loam.	CL*, CL-ML, ML	A-6*, A-7-6, A-4	0 	0-1	95-100	92-100	75-100 	50-100 	20-45	NP-24
i			i	İ	İ			İ	İ	İ	i	İ
UmwA:												
Urban land.					 		 	 	 	 	 	
Tracy	0-9	Sandy loam*	SC-SM*, SM,	A-2-4*, A-4	0	0	80-100	75-98	60-80	25-40	0-25	 NP-10
			sc									
l	9-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0 	0	85-100 	75-98 	55-90 	25-60	10-40 	NP-20
	47-60	Gravelly sandy	SC*, SC-SM,	A-6*, A-4,	0	0-1	60-90	50-75	30-70	10-60	0-40	NP-20
I		clay loam*,	SM, SP-SM	A-2-4								
		gravelly loamy sand.										
	60-86	Stratified loamy	SM*, SP-SM	A-3*,	 0-1	0-3	 65-100	 50-98	 15-85	0-25	0-0	 NP
i		sand to gravelly		A-1-B,	İ		İ	İ	İ	i	i	İ
ļ		sand*.		A-2-4								
UmwB:			 		 		 	 	 	 	 	
Urban land.		İ	i	İ	İ		İ	İ	İ	İ	İ	İ
 Tracy	0-9	 Sandy loam*		 A-2-4*, A-4	 0	0		 75-98			0-25	 NP-10
Iracy	0-3	Sandy Toam*	SC SM", SM,	A-2-4", A-4	0 			73-36		23-40	0-25	NF-10
į	9-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	0	85-100	75-98	55-90	25-60	10-40	NP-20
ļ	45 66	loam.	ML, SM			0.1						
	47-60	Gravelly sandy clay loam*,	SC*, SC-SM,	A-6*, A-4, A-2-4	0 	0-1	60-90 	50-75 	30-70 	 T0-60	0-40	NP-20
		gravelly loamy										
į		sand.	I									
ļ	60-86	Stratified loamy		A-3*,	0-1	0-3	65-100	50-98	15-85	0-25	0-0	NP
		sand to gravelly sand*.		A-1-B, A-2-4	 		I 	l I	I I	I I		
			i	· •	İ		i I	İ	İ	i	i	İ

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	.cation		ments		rcentag sieve n	e passi umber	ng		 Plas-
and soil name		1			>10	3-10					limit	ticity
	In	1	Unified	AASHTO	Inches	inches Pct	4	10	40	200	Pct	index
	111	 	 		PCC	FCC	 	 		i i	PCC	i
UmwC: Urban land.		i !	j !	İ			 -	 -	i I	i I	į Į	
 Tracy 	0-5	 Sandy loam*	 SC-SM*, SM, SC	 A-2-4*, A-4	0	 0 	 80-100 	 75-98 	 60-80	 25-40 	0-25	 NP-10
	5-47	Sandy loam*,	SC-SM*, CL,	A-4*, A-6	0	 0 	 85-100 	 75-98 	 55-90 	25-60	10-40	NP-20
	47-60	Gravelly sandy clay loam*, gravelly loamy sand.	SC*, SC-SM,	A-6*, A-4, A-2-4	0	0-1 	60-90 	 50-75 	30-70 	10-60 	0-40	NP-20
	60-86	Stratified loamy sand to gravelly sand*.		A-3*, A-1-B, A-2-4	0-1	0-3 	 65-100 	 50-98 	 15-85 	 0-25 	0-0	NP
UmwD:												
Urban land.		ļ										
Tracy	0-9	 Sandy loam*	 SC-SM*, SM, SC	 A-2-4*, A-4	0	 0 	 80-100 	 75-98 	 60-80 	 25-40 	0-25	 NP-10
	9-47	Sandy loam*,	SC-SM*, CL, ML, SM	A-4*, A-6	0	 0 	 85-100 	 75-98 	 55-90 	25-60	10-40	NP-20
	47-60	Gravelly sandy clay loam*, gravelly loamy	SC*, SC-SM,	A-6*, A-4, A-2-4	0	0-1	60-90 	50-75 	30-70 	10-60 	0-40	NP-20
	60-86	sand. Stratified loamy sand to gravelly sand*.		 A-3*, A-1-B, A-2-4	0-1	 0-3 	 65-100 	 50-98 	 15-85 	 0-25 	 0-0 	 NP
UmxA: Urban land.		 	 	 		 	 	 	 	 	 	
 Troxel	0-50	 Silt loam*	CI.* CIMI.	A-6*, A-4	0	 0	 100	 100	 90-100	75-90	25-40	 5-15
lioxei		Clay loam*		A-6*, A-4	0		95-100	'				5-35
i		-	SC-SM*, CL,	A-4*,	0	•	85-100	'				NP-20
		loam. 	CL-ML, SC	A-2-4, A-6		 	 	 	[[[[
UnoA: Urban land.		<u> </u> 	i !			 					į Į	i I
Whitaker	0-17	 Loam*	CL-ML*, CL	A-4*, A-6	0	 0	 90-100	 90-98	 75-85	 55-65	20-40	 5-20
		Clay loam*, sandy		A-6*, A-4	0	'	95-100	'				5-30
İ	39-48	Sandy loam*	SM*, SC,	A-2-4*	0	0-1	90-100	75-98 	55-85 	25-40	15-25	NP-10
	48-86	Stratified loamy sand to silt loam*.	SM*, CL-ML, ML, SP-SM	A-4*, A-2-4 	0	0	85-100 	75-98 	55-95 	10-85	0-40	NP-15
UnqB: Urban land.		 	 	 		 	 	 	 	 	 	
Williamstown	0-7	 Loam* 	 CL*, CL-ML, ML	A-4*, A-6	0	 0 	 95-100 	 85-100 	 85-100 	 55-85 	15-40	 NP-15
i	7-34	Clay loam*, loam		A-6*, A-7	0	0	90-100	90-100	85-95	55-80	20-50	5-30
j	34-39	Loam*, fine sandy	CL*, ML, SM,	A-6*, A-4	0	0	90-100	85-98 	65-95 	40-70 	15-40 	NP-25
	39-80	Loam*, fine sandy loam.	CL-ML*, CL,	A-4*, A-6	0	0-2	90-100	85-98	65-90	40-70	15-35	NP-20

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	cation	Fragi	ments		rcentag sieve n	e passi: umber	ng	 Liquid	
and soil name		 	Unified	AASHTO	,	3-10 inches		10	40	200	limit	ticity
	In	1			Pct	Pct					Pct	
		!	ļ									
UnqB: Crosier	0-11	 Loam*	 CTi-MTi*. CTi.	A-4*, A-6	 0-1	 0-1	 95-100	 90-100	 85-95	 55-90	 20-40	 NP-17
0100101			ML		0 =	0 =						
	11-30	Clay loam*, loam,	CL*, SC	A-6*, A-7-6	0-1	0-1	95-100	90-100	75-95	45-80	25-50	12-30
	30-38	sandy clay loam. Loam*, sandy	 CL-ML*, CL,	A-4*, A-6	 0-1	 0-3	 90-100	 85-100	 65-95	 40-70	 15-40	 NP-22
		loam, fine sandy loam.			 			 	 	 	 	
	38-80	Loam*, sandy loam, fine sandy loam.	CL-ML*, CL, ML, SC 	A-4*, A-6	0-1 	0-3 	90-100	85-100 	65-90 	40-70 	15-30 	NP-15
UntA:		ì	 									
Urban land.		1										
Wunabuna,			 		 	 		 	 	 	 	
-	0-21	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	95-100	75-100	26-39	2-15
	21-32	Silty clay loam*,		A-6*, A-4,	0	0	100	100	95-100	75-100	26-46	4-24
	32-38		ML CL*, CL-ML,	A-7-6 A-7-6*,	 0	 0	100	 100	 95-100	 75-100	 26-46	 4-24
j		silty clay loam,		A-4, A-6	İ	İ		İ	İ	İ	İ	i
	30.00	silt loam.		 A-8*	 0	 0	100	 100	100	 100	 	
	38-80	Muck*	PT*	A-8*	0	0	100	100	100 	100	 	
Usl:		Ì	İ	İ	İ				İ	İ	İ	İ
Udorthents, rubbish.								 	 	[
Tubbish.		Ì	 		 				 			
W:		İ	ĺ	İ	l					ĺ	ĺ	
Water.		 	l I	 	 	 		 	 	 	 	
WcnAI:		ì										
Waterford		Loam*		A-4*, A-6	0			'		50-80		5-15
	8-41	Fine sandy loam*, sandy loam,	CL-ML*, CL, SC, SC-SM	A-4*, A-2-4	0 	0 	95-100	90-100	75-100 	25-80	14-35	NP-10
		loam, sandy clay loam.			 	 		 	 	 	 	
j	41-46	Loamy sand*,	SM*, SP-SM,	A-2*,	0	0	80-100	80-100	15-90	0-30	0-0	NP
		sand, coarse	SW, SW-SM	A-1-B,								
	46-50	sand.	 SM*, SP,	A-2-4 A-2*,	 0	l I 0	 80-100	 80-100	 40-95	0-25	 0-0	 NP
		İ	SP-SM	A-1-B,						ĺ		İ
	F0 00			A-2-4, A-3			45.05		110 40			
	50-80	Gravelly coarse sand*, very	GP-GM*, SM, SP, SP-SM,	A-1-a*, A- 1-B	0-1 	0-3 	45-85 	45-75 	10-40 	0-25 	0-0 	NP
		gravelly coarse sand.	SW, SW-SM	 	 			 	 	 	 	
WoaA:			 		 			 	 	[
Williamstown	0-7	 Loam*	CL*, CL-ML,	A-4*, A-6	0	 0	 95-100	 85-100	 85-100	 55-85	15-40	 NP-15
			ML	İ								
		Clay loam*, loam Loam*, fine sandy	•	A-6*, A-7	0 0					55-80 40-70		5-30 NP-25
	31-33	loam.	SC									112-23
	39-80	Loam*, fine sandy		A-4*, A-6	0	0-2	90-100	85-98	65-90	40-70	15-35	NP-20
		loam.	ML, SM, SC									

Table 16.--Engineering Index Properties--Continued

Map symbol	Depth	USDA texture	Classifi 	cation		Fragi	ments		rcentag sieve n	e passi: umber		 Liquid	 Plas-
and soil name			Unified	 AAS	HTO.	>10 inches	3-10	 4	10	40	200	limit	ticity
	In	<u> </u>				Pct	Pct	-				Pct	
WoaB2:		1	 			 		 	 	[]	 	 	
Williamstown	0-5	Loam*		A-4*,	A-6	0	0	95-100	85-100	85-100	55-85	15-40	NP-15
	5-34	 Clay loam*, loam	ML CL*, CL-ML	 A-6*,	A-7	 0	0	 90-100	 90-100	 85-95	 55-80	 20-50	 5-30
	34-39	Loam*, fine sandy		A-6*,	A-4	0	0	90-100	85-98	65-95	40-70	15-40	NP-25
	39-80	loam. Loam*, fine sandy loam.	SC CL-ML*, CL, ML, SM, SC	 A-4*, 	A-6	 0 	0-2	 90-100 	 85-98 	 65-90 	 40-70 	 15-35 	 NP-20
WoaC2:		į		į					ļ	ĺ		ļ	į
Williamstown	0-5	 Loam* 	 CL*, CL-ML, ML	 A-4*,	A-6	 0 	0	 95-100 	 85-100 	 85-100 	 55-85 	 15-40 	 NP-15
	5-34	Clay loam*, loam	1	A-6*,	A-7	0	0	90-100	90-100	 85-95	55-80	20-50	5-30
ļ	34-39	Loam*, fine sandy		A-6*,	A-4	0	0	90-100	85-98	65-95	40-70	15-40	NP-25
	39-80	loam. Loam*, fine sandy loam.	SC CL-ML*, CL, ML, SM, SC	 A-4*, 	A-6	 0 	0-2	 90-100 	 85-98 	 65-90 	 40-70 	 15-35 	 NP-20
WobB:		 	 			 		 	 	 	 	 	
Williamstown	0-7	 Loam* 	 CL*, CL-ML, ML	A-4*,	A-6	 0 	0	 95-100 	 85-100 	 85-100 	 55-85 	 15-40 	 NP-15
i		Clay loam*, loam		A-6*,		0	0	90-100	90-100	85-95	55-80	20-50	5-30
	34-39	Loam*, fine sandy loam.	CL*, ML, SM,	A-6*,	A-4	0 	0	90-100	85-98	65-95 	40-70	15-40 	NP-25
İ	39-80	Loam*, fine sandy		A-4*,	A-6	 0 	0-2	 90-100 	 85-98 	 65-90 	 40-70 	 15-35 	NP-20
Crosier	0-11	 Loam*	 CL-ML*, CL, ML	 A-4*,	A-6	 0-1 	0-1	 95-100 	 90-100 	 85-95 	 55-90 	 20-40 	 NP-17
	11-30	Clay loam*, loam, sandy clay loam.	1	A-6*,	A-7-6	 0-1 	0-1	 95-100 	 90-100 	 75-95 	 45-80 	 25-50 	 12-30
	30-38	Loam*, sandy loam, fine sandy loam.	CL-ML*, CL, ML, SC 	A-4*, 	A-6	0-1 	0-3	90-100 	85-100 	65-95 	40-70 	15-40 	NP-22
	38-80	Loam*, sandy loam, fine sandy loam.		A-4*,	A-6	0-1 	0-3	90-100	85-100 	65-90 	40-70 	 15-30 	NP-15
WrxAN:		 	 	 		 		 	 	 	 	 	
	0-21	Silt loam*	CL*, ML	A-6*,	A-4	0	0	100	100	 95-100	75-100	26-39	2-15
	21-32	Silty clay loam*, silt loam.	CL*, CL-ML,	A-6*,		0	0	100	100	95-100	75-100	26-46	4-24
	32-38		CL*, CL-ML,	A-7- A-7-6 A-4,	*,	 0 	0	 100 	 100 	 95-100 	 75-100 	 26-46 	 4-24
İ	38-80	silt loam.	 PT*	 A-8*		 0	0	 100	 100	 100	 100	 	
WtbA:		 	 			 		 	 	 	 	 	
Whitaker	0-17	Loam*	CL-ML*, CL	A-4*,	A-6	0	0	90-100	90-98	75-85	55-65	20-40	5-20
	17-39	Clay loam*, sandy clay loam.	CL*, CL-ML	A-6*,	A-4	0	0	95-100	90-100	80-95	40-75	20-60	5-30
	39-48	clay loam. Sandy loam*	 SM*, SC, SC-SM	 A-2-4 	*	 0 	0-1	 90-100 	 75-98 	 55-85 	 25-40 	 15-25 	 NP-10
	48-86	Stratified loamy sand to silt loam*.	'	A-4*,	A-2-4	 0 	0	 85-100 	75-98	 55-95 	 10-85 	0-40 	NP-15

Table 16.--Engineering Index Properties--Continued

			Classifi	cation	Fragi	ments	Pe:	rcentag	e passi	ng		
Map symbol	Depth	USDA texture					:	sieve n	umber		Liquid	Plas-
and soil name					>10	3-10					limit	ticity
			Unified	AASHTO	inches	inches	4	10	40	200		index
	In				Pct	Pct					Pct	
WujB:			 				 	 				
Williamstown	0-7	Loam*	CL*, CL-ML,	A-4*, A-6	0	0	95-100	85-100	85-100	55-85	15-40	NP-15
			ML									
	7-34	Clay loam*, loam	CL*, CL-ML	A-6*, A-7	0	0	90-100	90-100	85-95	55-80	20-50	5-30
	34-39	Loam*, fine sandy	CL* , ML, SM,	A-6*, A-4	0	0	90-100	85-98	65-95	40-70	15-40	NP-25
		loam.	SC									
	39-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0	0-2	90-100	85-98	65-90	40-70	15-35	NP-20
		loam.	ML, SM, SC									
Moon	0-9	Loamy sand*	 SM*, SP-SM	A-2-4*	0	0	 85-100	 75-100	 55-90	10-25	0-0	 NP
	9-23	Loamy sand*,	SM*, SP-SM	A-2-4*	0	0	85-100	75-100	55-90	0-25	0-0	NP
		loamy fine sand,	l			İ		ĺ	ĺ	ĺ	ĺ	ĺ
		sand.	l			İ		ĺ	ĺ	ĺ	ĺ	ĺ
	23-35	Sandy clay loam*,	CL*, SC,	A-6*, A-4	0	0	90-100	75-100	55-95	25-60	10-60	NP-20
		sandy loam.	SC-SM			İ		ĺ	ĺ	ĺ	ĺ	ĺ
	35-45	Loam*, clay loam	CL*, CL-ML	A-4*, A-6	0	0-1	95-100	90-100	85-95	55-80	20-50	5-30
İ	45-80	Loam*, fine sandy	CL-ML*, CL,	A-4*, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-15
j		loam.	ML, SC, SM									
			1								1	1

Table 17a.--Physical Properties of the Soils

(Absence of an entry indicates that data were not estimated. Properties are listed as low, representative, and high values separated by a hyphen. Low and high values reflect the normally expected range. Representative values are indicative of conditions that occur most commonly.)

Map symbol	Depth	Sand	Silt	Clay	Moist	Permeability	Available	Linear	Organic
and soil name			ĺ		bulk	(Ksat)	water	extensi-	matter
					density		capacity	bility	
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
AahAK:			 	 	 	 	 	 	
Abscota	0-5	70-80-90	0-11-30	2-9-15	1.30-1.45-1.60	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-1.8-3.
	5-14	70-80-90	0-12-25	0-8-10	1.35-1.48-1.60	6.00-13.00-20.00	0.05-0.08-0.11	0.00-1.50-2.90	0.5-0.8-1.
	14-60	85-90-100	0-5-10	0-5-10	1.45-1.53-1.60	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.0-0.
atAN:			 	 	 	 	 	 	
Ackerman,		İ					İ	İ	
drained	0 - 8	0-0-10	0-0-10	0-0-10	0.15-0.45-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	8-14	0-0-10	0-0-10	0-0-10	0.30-1.00-1.50	0.06-0.13-0.20	0.18-0.21-0.24	3.00-4.50-5.90	20-35 -60
	14-80	75-90-98	0-7-25	0-3-10	1.60-1.70-1.80	6.00-13.00-20.00	0.06-0.07-0.08	0.00-1.50-2.90	0.0-0.3-1.
bhAN:				 		 	 	 	
Adrian,			ĺ				ĺ	ĺ	ĺ
drained		1	0-0-10		'		0.35-0.40-0.45		40-75 -90
	9-34		0-0-10				0.35-0.40-0.45		40-75 -90
	34-80	75-89-98	0-6-25	0-5-10	1.40-1.58-1.75	6.00-13.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.3-1.
bhAU:				 	 		 	 	
Adrian,			ĺ				ĺ	ĺ	ĺ
undrained	0-34	0-0-10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	34-80	75-89-98	0-6-25	0-5-10	1.40-1.58-1.75	6.00-13.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.3-1.
puAN:				 			 	 	
Antung,		İ	į	İ			İ	İ	İ
drained	0 - 9	0-0-10	0-0-10	0-0-10	0.15-0.45-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	9-12	0-0-10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	12-80	75-94-98	0-4-10	0-2-10	1.40-1.58-1.75	6.00-13.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.3-1.
xvA:				 					
Auten	0 - 9	30-33-52	30-49-50	11-18-22	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90	2.0-3.0-4.
	9-22	30-40-70	10-30-50		'	'	0.12-0.16-0.19		
	22-80	75-85-100	0-8-20	1-7-10	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.
saaA:				 	 		! 	! 	
Bainter	0-9	45-67-85	5-26-50	2-7-12	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3.
	9-13	45-71-85	5-24-50	2-5-12	1.45-1.58-1.70	'	0.07-0.13-0.18		
	13-31				'	'	0.07-0.12-0.17		
	31-44	1			'	'	0.05-0.11-0.17		
	44-54 54-80	45-70-80 85-91-100			'	0.60-1.30-2.00 20.00-20.00-20.00	0.10-0.16-0.21		
	31 00			0 2 20					
BaaB:									
Bainter	0 - 9		5-26-50		•		0.08-0.15-0.22	•	
				•	•	'	0.07-0.13-0.18		
		'		•	'	'	0.07-0.12-0.17		
					•	'	0.05-0.11-0.17	•	
		'		•	'	20.00-20.00-20.00			
	0.00		, , , , ,	22.10					
BaaC2:									
Bainter		'		•	'	'	0.08-0.15-0.22		
		'				'	0.07-0.13-0.18		
		'		•	'		0.07-0.12-0.17	•	
					•	'	0.05-0.11-0.17	•	,
		'		•	'	'	0.10-0.16-0.21		
	24-80	02-21-100	0-7-15	0-2-10	1.00-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	∪.∪-∪.∠-0.

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
ļ							,		
BbmA:		İ	į	İ				İ	
Baugo	0-11	10-20-52	50-60-80	10-20-27	1.20-1.43-1.65	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90	1.0-2.0-3.0
	11-29	10-17-50	45-52-70	27-31-36	1.40-1.55-1.70	0.60-1.30-2.00	0.07-0.14-0.21	3.00-4.50-5.90	0.0-0.5-1.0
	29-36			•	'	'	'	0.00-1.50-2.90	'
		85-90-100				'	1	0.00-1.50-2.90	
	56-80	30-50-85	10-30-50	10-20-27	1.75-1.85-2.00	0.06-0.13-0.20	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
P3									
BmgA: Blount	0-7	5-23-35	 50-57-80	 10-20-26	 1 35_1 45_1 55	 0.60-1.30-2.00	 n 2n_n 22_n 24	 0.00-1.50-2.90	 1
biount	7-23				1.40-1.55-1.70	'	1	3.00-4.50-5.90	
i	23-42				1.50-1.60-1.70	'	'	3.00-4.50-5.90	'
	42-80				1.75-1.85-2.00	'	'	3.00-4.50-5.90	'
i		i	İ	İ	İ	İ	İ	İ	İ
BshA:		İ	İ	İ				İ	
Brady	0 - 9	52-62-80	5-28-35	2-10-15	1.35-1.45-1.55	2.00-4.00-6.00	0.12-0.14-0.16	0.00-1.50-2.90	2.0-3.0-4.0
I	9-37					'	'	0.00-1.50-2.90	'
I	37-56		5-13-35					0.00-1.50-2.90	
	56-80	90-93-99	1-5-10	0-2-10	1.40-1.45-1.50	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.0-0.0
BsxA:									
Brems	0-9 9-27					'	1	0.00-1.50-2.90	
	9-27 27-72	75-88-98				'	'	0.00-1.50-2.90	'
	72-80	75-88-98				'	1	0.00-1.50-2.90	
	72-00	75-00-50	0-0-13	1-4-0			0.03-0.00-0.07	0.00-1.50-2.50	0.0-0.2-0.5
Morocco	0-9	70-85-90	1-10-15	1-5-6	1.40-1.50-1.60	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-1.2-2.0
	9-60	70-94-100				'	'	0.00-1.50-2.90	'
į	60-80	85-97-100	0-1-10	1-2-6	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
į		į	İ	İ				İ	
BteA:									
Brems	0 - 9	70-81-90	0-13-15	1-6-12	1.50-1.58-1.65	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	9-27					'	'	0.00-1.50-2.90	'
	27-72	75-88-98						0.00-1.50-2.90	
	72-80	75-88-98	0-8-15	1-4-6	1.60-1.68-1.75	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
BuuA:		1		 					
Brookston	0-9	 30 40 E0	30 40 50	 14 20 27	 1 25 1 42 1 50	 0.60-1.30-2.00	 	 0.00-1.50-2.90	
BIOOKSCOII	9-48				1.40-1.50-1.60	'	'	3.00-4.50-5.90	'
	48-68				1.60-1.70-1.75	'	'	0.00-1.50-2.90	'
	68-80			•	1.60-1.70-1.75	'	1	0.00-1.50-2.90	
ľ		i							
CmbAI:		İ	İ	İ				İ	
Cohoctah	0-13	30-45-52	30-40-50	7-15-20	1.30-1.45-1.60	2.00-4.00-6.00	0.20-0.21-0.22	0.00-1.50-2.90	3.0-4.5-6.0
	13-56	40-53-70	10-32-40	5-15-25	1.50-1.60-1.70	2.00-4.00-6.00	0.15-0.17-0.19	0.00-1.50-2.90	0.5-1.2-2.0
	56-80	85-90-98	2-6-8	0-4-10	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
CnbA:									
Coloma		1				6.00-13.00-20.00		'	
						6.00-13.00-20.00	'	•	'
	47-80	/U-93-100	U-Z-Z5 	<u>2-</u> 5-12	1 1.20-1.58-1.65	2.00-11.00-20.00	0.03-0.06-0.08 	0.00-1.50-2.90	0.0-0.2-0.5
CnbB:		1	I I	 	 	 	 	 	1
'	0-12	85-91-100	0-5-10	0-4-10	1.35-1.50-1.65	 6.00-13.00-20.00	0.05-0.07-0.09	0.00-1.50-2.90	0.5-1.2-2.0
						6.00-13.00-20.00	'	'	
ľ				•	'	2.00-11.00-20.00	'	•	'
i		į			İ		İ	İ	İ
CnbC:		İ							
Coloma	0-12	85-91-100	0-5-10	0-4-10	1.35-1.50-1.65	6.00-13.00-20.00	0.05-0.07-0.09	0.00-1.50-2.90	0.5-1.2-2.0
	12-47	70-92-100	0-5-25	0-3-10	1.35-1.50-1.65	6.00-13.00-20.00	0.05-0.09-0.12	0.00-1.50-2.90	0.0-0.2-0.5
	47-80	70-93-100	0-3-25	2-5-12	1.50-1.58-1.65	2.00-11.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.2-0.5
1		1	1						

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
į		į	ĺ	ĺ					
CnbD: Coloma	0 12	 85-91-100	0 5 10	0 4 10	 1 25 1 50 1 65	 6.00-13.00-20.00	0 05 0 07 0 09		
COTOMA		70-92-100			'		0.05-0.09-0.12		'
		70-93-100			'		0.03-0.06-0.08	'	'
İ					ĺ		ĺ		
CrrA:	0 01	0.15.00					 0.22-0.23-0.24		
Coupee	0-21 21-33		•		'		0.12-0.23-0.24		'
, I		70-88-100	•		'	•	0.06-0.09-0.11	'	'
İ	52-98	87-90-100	0-6-10	2-4-6	1.50-1.60-1.70	20.00-20.00-20.00	0.04-0.05-0.06	0.00-1.50-2.90	0.0-0.2-0.5
- 1									
CvdA: Crosier	0-11	 25-45-50	 30-40-50	 5-15-25	 1.20-1.43-1.65	 0.60-1.30-2.00	 0.16-0.17-0.19	 0.00-1.50-2.90	 1.0-2.0-3.0
	11-30			1	1.40-1.55-1.70		0.12-0.16-0.19	'	'
į	30-38	•	•	•		•	0.12-0.14-0.16	0.00-1.50-2.90	0.0-0.2-0.5
!	38-80	30-45-60	5-40-50	10-15-20	1.75-1.80-2.00	0.06-0.13-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
CvdB:		 	 	 	 		l I	 	
Crosier	0-11	25-45-50	30-40-50	5-15-25	1.20-1.43-1.65	0.60-1.30-2.00	0.16-0.17-0.19	0.00-1.50-2.90	 1.0-2.0-3.0
į	11-30	25-40-70	5-32-50	20-28-34	1.40-1.55-1.70	0.20-0.40-0.60	0.12-0.16-0.19	3.00-4.50-5.90	0.0-0.5-1.0
Į.	30-38		•		'	•	0.12-0.14-0.16	'	'
ļ	38-80	30-45-60	5-40-50	10-15-20	1.75-1.80-2.00	0.06-0.13-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
CwkA:		 	 	 	 		 	 	
Crumstown	0 - 9	50-72-80	2-18-50	5-10-15	1.40-1.55-1.70	2.00-4.00-6.00	0.06-0.09-0.12	0.00-1.50-2.90	1.0-2.0-3.0
	9-19	•			'	•	0.10-0.14-0.18	'	'
		70-84-100			'	•	0.06-0.08-0.11	'	'
	45-100	70-92-100 	0-3-25	1-5-10	1.50-1.60-1.70	6.00-13.00-20.00 	0.05-0.08-0.11	0.00-1.50-2.90 	0.0-0.2-0.5
CwkB:					' 				
Crumstown	0-9		•		'	•	0.06-0.09-0.12	'	'
	9-19	•	•		'	•	0.10-0.14-0.18	'	'
		70-84-100 70-92-100			'	•	0.06-0.08-0.11	'	'
ļ									
DcrA:									
Del Rey	0-9				'	•	0.22-0.23-0.24	'	'
	9-33 33-90	•			'	•	0.12-0.16-0.20	'	'
ļ	33 30	0 13 10							
EchAN:		ĺ		ĺ			ĺ		
Edwards,									
drained	0-9 9-24	0-0 -10			'		0.35-0.40-0.45	 	40-75 -90 40-75 -90
ļ	24-80	•			'	•	0.00-0.00-0.00	'	'
İ		ĺ		ĺ			ĺ		
EchAU:									
Edwards,	0-24	 0-0-10	 0-0-10	 0-0-10	 	 0.20-3.10-6.00	 0.35-0.40-0.45	 	 40-75 -90
	24-80		•		'		0.00-0.00-0.00	1	
į		İ	İ	İ	İ	İ	İ	İ	
EcrAN:									
Edselton, drained	0-10	 0-0 -10	 0-0-10	0-0-10	 0 15-0 45 0 60	 0.20-3.10-6.00	 0.35-0.40-0.45	 	 40-75 -90
drained					'		0.35-0.40-0.45	ı	40-75 -90
i	21-48		•		'	•	0.00-0.00-0.00		'
į	48-80	75-94-98	0-4-25	0-2-10	1.40-1.58-1.75	6.00-13.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.3-1.0
EcrAU: Edselton,		 	 	 	 		 	 	[[
	0 21			0 0 10	10 15 0 20 0 60	1 0 00 2 10 6 00	10 25 0 40 0 45	ı I	 40-75 -90
undrained	0-21	0-0 -10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-73 -30
undrained			•		'	•	0.35-0.40-0.45		'

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt 	Clay 	Moist bulk	Permeability (Ksat)	Available water	Linear extensi-	Organic matter
j		į	İ	İ	density		capacity	bility	
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
meA:			 		 		 	 	
Elston	0-20	50-65-85	5-25-50	8-10-15	1.40-1.50-1.60	2.00-4.00-6.00	0.12-0.16-0.20	0.00-1.50-2.90	2.0-3.0-4.
	20-34				'		0.12-0.15-0.18	0.00-1.50-2.90	0.5-1.2-2.
	34-72				'		'	0.00-1.50-2.90	'
 	72-80	87-91-100	0-6-10	1-3-5 	1.60-1.70-1.80	20.00-20.00-20.00 	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.
czA:		į	į					İ	
Gilford	0-14				'		1	0.00-1.50-2.90	
	14-32 32-38	70-85-95			'			0.00-1.50-2.90	
 	32-38	75-89-98			'		1	0.00-1.50-2.90	
			İ						
dnA: Gilford	0-14			10 15 20	 1 40 1 55 1 70	2.00-4.00-6.00	 	 0.00-1.50-2.90	10 12 15
	14-32				'		1	0.00-1.50-2.90	
	32-38	70-85-95			'		'	0.00-1.50-2.90	'
ľ	38-80	75-89-98			'		'	0.00-1.50-2.90	'
fbAN:			 		 		 	 	
Henrietta,									
drained	0-12	0-0 -10			'		0.35-0.40-0.45	•	40-75 -90
								0.00-1.50-2.90	
	10 00								
fbAU: Henrietta,			 	 	 		 	 	
undrained	0-12	0-0 -10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
ĺ	12-43	30-64-100	0-28-60	5-8-18	1.45-1.63-1.80	0.57-1.28-1.98	0.09-0.16-0.22	0.00-1.50-2.90	0.0-0.2-0.
	43-80	30-64-100	0-28-60	5-8-18	1.45-1.63-1.80	0.57-1.28-1.98	0.08-0.15-0.22	0.00-1.50-2.90	0.0-0.2-0.
kkA:		 	 	 	 		 	 	
Hillsdale	0 - 8	45-67-85	5-26-50	2-7-12	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3
	8-14	45-71-85	5-24-50	2-5-12	1.45-1.58-1.70	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90	0.0-0.5-1.
	14-44				'			0.00-1.50-2.90	
	44-84	50-60-85	5-30-50	5-10-15	1.60-1.70-1.80	0.60-3.30-6.00	0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.
ikkB:			İ						
Hillsdale	0 - 8	45-67-85	5-26-50	2-7-12	1.40-1.55-1.70		'	0.00-1.50-2.90	'
	8-14		5-24-50	'	'		'	0.00-1.50-2.90	
	14-44 44-84				'		1	0.00-1.50-2.90	
	11 01			3 10 13					
knC2:								!	
Hillsdale							'	0.00-1.50-2.90	
l							1	0.00-1.50-2.90	
 					'		'	0.00-1.50-2.90	
į		İ	İ	j	İ		İ	İ	İ
Oshtemo					'		1	0.00-1.50-2.90	'
					'		'	0.00-1.50-2.90	
					'	2.00-4.00-6.00 6.00-13.00-20.00	1	•	
		87-88-100			'	20.00-20.00-20.00	'	•	'
knD2: Hillsdale	0-5	45-67-85	 5-26-50	2-7-12	 1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	 0.00-1.50-2.90	 1.0-2.0-3.
		1					1	0.00-1.50-2.90	
					1.50-1.60-1.70		0.12-0.15-0.18	•	'
						0.00 2.00 2.00	0.11	0.00 1.30 2.30	10.3 0.0 1

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	capacity In/in	Pct	Pct
		İ	İ	İ			İ	İ	İ
HknD2:									
Oshtemo	0-6 6-14	50-71-90				'	'	0.00-1.50-2.90 0.00-1.50-2.90	
	14-35	50-71-90					'	0.00-1.50-2.90	
	35-60	'				6.00-13.00-20.00	'	•	
	60-80	87-88-100	0-9-10			20.00-20.00-20.00	'	•	
								!	
HkpC2: Hillsdale	 0-5	1 45 67 05	 5-26-50	2712	 1 40 1 55 1 70	 2.00-4.00-6.00	 	 0.00-1.50-2.90	1 0 2 0 2 .
milibuale	5-14	'	5-24-50	1			'	0.00-1.50-2.90	
	14-44	'				'	'	0.00-1.50-2.90	
	44-84	50-60-85	5-30-50	5-10-15	1.60-1.70-1.80	0.60-3.30-6.00	0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.
M	 0-5					 0.60-1.30-2.00		 0.00-1.50-2.90	110150
Tracy	0-5 5-47	'				'	'	0.00-1.50-2.90	
	47-60	'				'	'	0.00-1.50-2.90	
	60-86	70-85-100				'	'	0.00-1.50-2.90	
								ĺ	ĺ
HkpD2: Hillsdale		45 65 05							
Hillsdale	0-5 5-14	1	5-26-50 5-24-50				1	0.00-1.50-2.90	
	14-44	1			1.50-1.60-1.70	'	'	0.00-1.50-2.90	
	44-84	1					'	0.00-1.50-2.90	
		İ	İ	İ			ĺ	İ	İ
Tracy	0-5	'				'	'	0.00-1.50-2.90	
	5-47 47-60	'				'	'	0.00-1.50-2.90	
		70-85-100	0-7-30			'	'	0.00-1.50-2.90 0.00-1.50-2.90	
		İ	İ	İ	İ		İ	İ	İ
HtbAN:									
Houghton,		0 0 10						 	40 75 00
drained	0-9 9-80	0-0 -10				'	0.35-0.40-0.45	 	40-75 -90 40-75 -90
		İ	İ	İ	ĺ		İ	İ	İ
HtbAU:									
Houghton,									
undrained	0-80	0-0-10	0-0-10 	0-0-10 	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45	 	40-75 -90
JaaAK:							' 	İ	
Jamestown	0-11	'				•	0.17-0.22-0.26	0.00-1.50-2.90	2.0-3.0-4.
	11-33			'		•	'	0.00-1.50-2.90	
	33-44	1					1	0.00-1.50-2.90	
		1						0.00-1.50-2.90 0.00-1.50-2.90	:
MfaA:									
Martinsville		'					1	0.00-1.50-2.90	
		'				'	'	3.00-4.50-5.90	
		'					1	0.00-1.50-2.90	
			3 23 33	0 10 11					
MfaB2:				l				l	
Martinsville		'				'	'	0.00-1.50-2.90	
		'				'	'	3.00-4.50-5.90	
		'				•	'	0.00-1.50-2.90 0.00-1.50-2.90	
	-2 00			,2 					
MfaC2:								l	
Martinsville						'	'	0.00-1.50-2.90	
						•	'	3.00-4.50-5.90	•
	35-53	1 25-60-80	5-15-50	15-25-25	1.50-1.60-1.70	U.60-1.30-2.00	U.10-U.14-0.18	0.00-1.50-2.90	0.5-0.8-1.
		'				'	'	0.00-1.50-2.90	

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
			100	100	g/cc		111/111		
MfrAN:		İ	i İ	İ			İ	İ	i İ
Madaus,									
drained	0 - 9	0-0 -10	0-0-10	0-0-10	0.15-0.45-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	9-48					0.06-0.13-0.20	0.00-0.00-0.00	•	
	48-80	70-94-98	0-4-10	1-2-3	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.3-1.
V6377				 					
MfrAU: Madaus,		l I	 	 	 	 	1	l I	l I
undrained	0-9	0-0-10	0-0-10	 0-0-10	 0 15-0 20-0 60	0.20-3.10-6.00	0.35-0.40-0.45	 	 40-75 -90
unaramea	9-48	'				0.06-0.13-0.20	0.00-0.00-0.00	1	
	48-80	70-94-98				'	0.05-0.08-0.10	'	
	10 00		00						
MgcA:		İ	İ	İ		İ	İ	İ	İ
Maumee	0-23	70-80-90	0-14-25	2-6-10	1.60-1.68-1.75	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	2.0-3.0-4.
	23-61	70-91-98	1-6-20	2-3-10	1.60-1.70-1.80	6.00-13.00-20.00	0.06-0.08-0.11	0.00-1.50-2.90	0.0-0.5-1.
	61-80	85-97-100	0-2-15	0-1-10	1.45-1.55-1.65	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.5-1.
MgdAN:									
Martisco,									
drained		0-0 -10	•			0.20-3.10-6.00	0.35-0.40-0.45	•	40-75 -90
ļ	12-80	10-17-35	50-65-80	10-18-25	0.30-1.00-1.50	0.06-0.13-0.20	0.00-0.00-0.00	0.00-1.50-2.90	0.0-10 -20
 			 	 		 -			
MhaA: Maumee	0-23	70 00 00	1 12 20		 1	 6.00-13.00-20.00		 0.00.1 E0.2.00	
mauniee	23-61	70-80-90	•			6.00-13.00-20.00	'	•	
		85-97-100	•			6.00-13.00-20.00	'	•	
	01-00		0-2-15	0-1-10	1.45-1.55-1.05			0.00-1.50-2.50	
MhbA:			! 	 		 	İ	! 	l I
Maumee	0-23	70-80-90	1-13-20	2-7-10	1.50-1.65-1.80	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	10-12 -20
i	23-61	70-91-98				6.00-13.00-20.00	'	'	•
į	61-80	85-97-100	0-2-15	0-1-10	1.45-1.55-1.65	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.5-1.
į		İ	j	İ			İ	İ	İ
MmbC2:									
Miami	0-5	25-48-52	30-40-50	7-12-18	1.20-1.43-1.65	0.60-1.30-2.00	0.17-0.22-0.26	0.00-1.50-2.90	1.0-2.0-3.
	5-31					0.60-1.30-2.00	0.12-0.14-0.16	•	
	31-36	'	•			0.20-0.40-0.60	0.07-0.12-0.17	•	
	36-80	30-45-60	30-40-50	10-15-20	1.75-1.80-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.
MmdC3:	0-4	20 35 45			 1 20 1 E0 1 70	 0.60-1.30-2.00	0.17-0.20-0.23		
miami	4-31			'		0.60-1.30-2.00	0.17-0.20-0.23	'	
	31-36	'	•			0.20-0.40-0.60	0.07-0.12-0.17	•	
	36-80					0.01-0.10-0.20	0.02-0.03-0.04	'	
ï									İ
MmdD3:		İ	İ	İ		İ	İ	İ	İ
Miami	0 - 4	20-35-45	20-34-45	27-31-40	1.30-1.50-1.70	0.60-1.30-2.00	0.17-0.20-0.23	3.00-4.50-5.90	0.5-1.2-2.
ĺ	4-31	30-35-60	20-37-50	20-28-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.
	31-36	30-40-60	30-40-50	15-20-25	1.60-1.70-1.80	0.20-0.40-0.60	0.07-0.12-0.17	0.00-1.50-2.90	0.0-0.2-0.
	36-80	30-45-60	30-40-50	10-15-20	1.75-1.80-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.
MouA:									<u> </u>
Milford		'				0.60-1.30-2.00	0.21-0.22-0.23		
	18-50	'	•			0.20-0.40-0.60	0.11-0.16-0.20	•	
ļ	50-60	2-10-30	40-60-70	20-30-42	1.40-1.60-1.75	0.20-0.40-0.60	0.10-0.16-0.22	3.00-4.50-5.90	0.0-0.5-1.
√isaλ: ∣			 	 	 	 		 	
Mishawaka	0-12		 E 17 E^	 E 10 15	 1 40 1 55 1 50	 2.00-4.00-6.00	10 12 0 15 0 17	 0 00 1 50 2 22	1 2 0 2 0 4
mismawaka		'	•			2.00-4.00-6.00	0.13-0.15-0.17 0.13-0.15-0.17	•	
l I		50-72-85				'	0.13-0.15-0.17	•	
l I		87-95-100				'	0.09-0.12-0.14	•	
l I		87-96-100				'	0.02-0.05-0.07	•	
I	23 00		. 33-10		1.,,-1.00	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1		

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Permeability (Ksat)	Available water	Linear extensi-	Organic matter
		<u> </u>	<u> </u>		density		capacity	bility	
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
ItsB2:			! 	 					
Morley	0-5	5-25-40	50-60-80	10-15-26	1.30-1.45-1.60	0.60-1.30-2.00	0.18-0.21-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	5-20			'	1.40-1.50-1.60	'	'	6.00-7.50-8.90	•
	20-29 29-80			'	1.40-1.50-1.60 1.70-1.80-1.90	0.06-0.33-0.60	1	6.00-7.50-8.90 3.00-4.50-5.90	
l	29-60	5-22-45	20-45-70	27-33-35	1.70-1.80-1.90	0.01-0.10-0.20	0.01-0.02-0.02	3.00-4.50-5.90	0.5-0.6-1.0
ItsC2:		İ	İ				İ	İ	
Morley	0-5			'		'	0.18-0.21-0.24	'	•
	5-20			'	1.40-1.50-1.60	'	'	6.00-7.50-8.90	•
l	20-29 29-80			'	1.70-1.80-1.90	0.06-0.33-0.60	1	6.00-7.50-8.90 3.00-4.50-5.90	
	25 00	3 22 13	20 13 70	27 33 33					
fubD3:		į	į	İ	İ		İ	į	İ
Morley	0 - 4					0.20-0.40-0.60	1	6.00-7.50-8.90	
	4-20			'	1.40-1.50-1.60	'	1	6.00-7.50-8.90	
	20-29 29-80			'	1.70-1.80-1.90	0.06-0.33-0.60	1	6.00-7.50-8.90 3.00-4.50-5.90	
	25 00	3 22 13	20 13 70	27 33 33					
fvhAN:		į	į	İ	İ		j	j	İ
Moston,									
drained	0-8 8-24		0-0-10	'		0.20-3.10-6.00	0.35-0.40-0.45	 	40-75 -90 40-75 -90
l	24-48		0-0-10 0-0-10	'		0.20-3.10-6.00	0.35-0.40-0.45	3.00-4.50-5.90	
	48-80	75-94-98		'		'	0.02-0.05-0.07	1	
j		į	į	İ	İ		İ	j	İ
fvhAU:							!	!	
Moston,	0.04							 	 40-75 -90
undrained	0-24 24-48		0-0-10 0-0-10	'		0.20-3.10-6.00	0.35-0.40-0.45	 3.00-4.50-5.90	
	48-80	75-94-98		'		'	0.02-0.05-0.07	'	•
j		İ	į	İ	İ	İ	İ	į	İ
lvkA:							<u> </u>	<u> </u>	
Morocco	0-9 9-60	70-85-90	1-10-15	'		'	0.10-0.11-0.12	1	
l		85-97-100	0-3-15	'		'	0.05-0.06-0.11	1	
fwzAN:		İ	ĺ				ĺ	ĺ	ĺ
Muskego,									
drained	0-9 9-27		0-0-10 0-0-10	'		0.20-3.10-6.00	0.35-0.40-0.45	 	40-75 -90 40-75 -90
l 	27-80		0-0-10	'		0.06-0.13-0.20		3.00-4.50-5.90	
İ							ĺ	İ	
IwzAU:									
Muskego,									
undrained	0-27 27-80		0-0-10 0-0-10	'		1	0.35-0.40-0.45	1	40-75 -90
	27-00	0-0-10	0-0-10	0-0-10					20-33 -00
krA:		į	į	İ	İ		j	j	İ
Oshtemo	0 - 9		1-19-50	'			0.06-0.09-0.12	•	•
	9-14		1-19-50			1	0.06-0.09-0.12	1	
l I	14-35 35-60	50-71-90 70-80-95		'		1	0.10-0.14-0.18	1	
 		87-88-100				20.00-20.00-20.00	1	1	
İ		į	İ	j	İ		İ	į	İ
krB:		[ļ				!	!	l
Oshtemo	0-9		1-19-50	'			0.06-0.09-0.12	1	
	9-14		1-19-50		'	1	0.06-0.09-0.12	1	
1	14.25	50_71 00	1 0-14 50	5_15 20	17 45 - 7 60 7 70	2 00-4 00 6 00	10 10 10 10 10	10 00-1 50 2 00	
	14-35 35-60					'	0.10-0.14-0.18 0.10-0.11-0.12	'	

Table 17a.--Physical Properties of the Soils--Continued

Map symbol	Depth	Sand	Silt	Clay	Moist	Permeability	Available	Linear	Organic
and soil name			 		bulk density	(Ksat)	water	extensi- bility	matter
	In	Pct	Pct	Pct	g/cc	In/hr	capacity In/in	Pct	Pct
	111	FCC	FCC	FCC	g/cc 	111/111	111/111	FCC	FCC
OkrC2:									
Oshtemo	0-6	50-72-80	1-19-50	5-9-15	1.40-1.55-1.70	2.00-4.00-6.00	0.06-0.09-0.12	0.00-1.50-2.90	1.0-2.0-3.0
	6-14						•	0.00-1.50-2.90	
	14-35						•	0.00-1.50-2.90	
	35-60 60-80					6.00-13.00-20.00 20.00-20.00-20.00	•	0.00-1.50-2.90	
	60-80	87-88-100	0-9-10	0-3-5 	1.60-1.70-1.80 	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
OkrD:	 				 	 		 	
Oshtemo	0-9	50-72-80	1-19-50	5-9-15	1.40-1.55-1.70	2.00-4.00-6.00	0.06-0.09-0.12	0.00-1.50-2.90	1.0-2.0-3.0
	9-14	50-72-80	1-19-50	5-9-15	1.40-1.55-1.70	2.00-4.00-6.00	0.06-0.09-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	14-35						•	0.00-1.50-2.90	
	35-60	70-80-95					•	0.00-1.50-2.90	
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
OlcA:	l 				1 	I 	1 	1 	
Oshtemo	0-9	50-71-90	0-19-50	5-10-20	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	9-14				•	•	•	0.00-1.50-2.90	
	14-35	50-71-90	0-14-50				0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	35-60		0-12-30				•	0.00-1.50-2.90	
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
OlcB:	l i								
OlcB: Oshtemo	l l 0-9	50-71-90	 0-19-50	 5-10-20	 1 40-1 55-1 70	2.00-4.00-6.00	 0 08-0 15-0 22	 0.00-1.50-2.90	 1 0-2 0-3 0
OBITCOMO	9-14				1.45-1.60-1.70			0.00-1.50-2.90	
	14-35						0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	35-60	70-80-95	0-12-30	2-8-12	1.45-1.60-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
OlcC2: Oshtemo	 0-6	E0 71 00	0 10 50	 E 10 20	 1 40 1 EE 1 70	2.00-4.00-6.00	 0 00 0 15 0 22	 0.00-1.50-2.90	 1
Osncemo	6-14						•	0.00-1.50-2.90	
	14-35						•	0.00-1.50-2.90	
	35-60	70-80-95	0-12-30	2-8-12	1.45-1.60-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
OlcD:									
Oshtemo	0-9 9-14						•	0.00-1.50-2.90	
	14-35						•	0.00-1.50-2.90	'
	35-60	70-80-95					•	0.00-1.50-2.90	'
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	•	•	
OmgA:							[[
Osolo						6.00-13.00-20.00	•	•	'
					•	6.00-13.00-20.00 6.00-13.00-20.00	•	•	'
						6.00-13.00-20.00	•	•	
	- 55		<u></u> 0					 	,
PaaAN:		İ			ĺ	ĺ	ĺ	ĺ	
Palms,									
drained	'					•	0.35-0.40-0.45	'	40-75 -90
	35-80	5-41-80	15-38-70	5-21-35	1.45-1.60-1.75	0.20-1.10-2.00	0.14-0.18-0.22	0.00-1.50-2.90	0.0-1.5-3.0
PaaAU:	 	1			 	 	 	 	
PaaAU: Palms,	 		 		I 	 	 	 	
•	0-35	0-0 -10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45		40-75 -90
	35-80					•	•	0.00-1.50-2.90	
					l	l	l	I	
Pmg:					!	!	!	!	
Pits, gravel.									
PxlA:	 	1			 	 	 	 	
PXIA: Psammaquents.	 				 	 	 	 	
	' 								
	'	1			1	1	1	1	1

Table 17a.--Physical Properties of the Soils--Continued

				 	bulk density	(Ksat)	water capacity	extensi- bility	matter
I	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
Pxo: Psamments.			 		 - 	 	 	 	 -
043									
QuiA:	0 - 7	30-40-52	 30-42-50	 11-18-22	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90	 2.0-3.0-4.0
	7-47	25-60-80	10-30-50	5-10-20	1.50-1.60-1.70	0.60-1.30-2.00	0.09-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	47-80	75-85-100	0-9-25	2-6-10	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.2-0.5
QujA:]	 			 	 	
Quinn	0 - 7							0.00-1.50-2.90	
	7-47							0.00-1.50-2.90	
	47-80	75-85-100	0-9-25	2-6-10	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.2-0.5
RenA:				İ					
Rensselaer	0-15						'	0.00-1.50-2.90	'
	15-38 38-42				1.40-1.50-1.60 1.40-1.50-1.60		'	3.00-4.50-5.90 3.00-4.50-5.90	'
	42-76						'	0.00-1.50-2.90	'
į	76-80	30-45-60	30-42-50	10-13-20	1.60-1.70-1.75	0.06-0.13-0.20	0.08-0.11-0.15	0.00-1.50-2.90	0.0-0.2-0.5
ReyA:							 	 	
Rensselaer	0-15	30-41-50	 30-38-50	 11-21-27	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90	 3.0-4.5-6.0
į	15-38				1.40-1.50-1.60		0.15-0.18-0.20	3.00-4.50-5.90	1.0-2.0-3.0
	38-42				1.40-1.50-1.60			3.00-4.50-5.90	
	42-76 76-80				1.50-1.60-1.70 1.60-1.70-1.75		'	0.00-1.50-2.90	'
	70-00	30-43-00	50-42-50						0.0-0. <u>2</u> -0.5
RopA:									
Riddles	0-8 8-13						'	0.00-1.50-2.90 3.00-4.50-5.90	'
l I	13-33							0.00-1.50-2.90	
i	33-63	30-61-70	10-25-50	10-14-20	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.16-0.19	0.00-1.50-2.90	0.0-0.2-0.5
	63-90				1.40-1.55-1.70		'	0.00-1.50-2.90	'
	90-100	30-61-65	25-29-50 	10-10-20 	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.6-1.0
Oshtemo	0 - 9	50-72-80	1-19-50				0.06-0.09-0.12	0.00-1.50-2.90	1.0-2.0-3.0
	9-14		1-19-50				'	0.00-1.50-2.90	'
	14-35 35-60	50-71-90 70-80-95						0.00-1.50-2.90	
		87-88-100				20.00-20.00-20.00	'	'	'
RopB: Riddles	0-8	50-56-80	 10-33-45	 4-11-20	 1.40-1.55-1.70	2.00-4.00-6.00	 0.16-0.17-0.18	 0.00-1.50-2.90	 1.0-1.5-2.0
	8-13						'	3.00-4.50-5.90	'
							'	0.00-1.50-2.90	'
							'	0.00-1.50-2.90	'
							'	0.00-1.50-2.90	'
į									
Oshtemo							'	0.00-1.50-2.90	'
I							'	0.00-1.50-2.90	'
	35-60	70-80-95	0-12-30	2-8-12	1.45-1.60-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
RopC2:			 	 	 	[[
Riddles	0-5	50-56-80	10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
i							'	3.00-4.50-5.90	'
							'	0.00-1.50-2.90	'
							'	0.00-1.50-2.90	'
							'	0.00-1.50-2.90	'

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	l In	Pct	Pct	Pct	density g/cc	In/hr	In/in	Pct	Pct
						,	,		
RopC2:								!	
Oshtemo	0-6		1-19-50	'	'	'	'	0.00-1.50-2.90	'
	6-14 14-35		1-19-50	'	'	'	1	0.00-1.50-2.90	
	35-60		0-12-30		'	'	'	0.00-1.50-2.90	'
		87-88-100			'	20.00-20.00-20.00	'	•	'
								[
RopD2: Riddles	0-5	 E0 E6 80	10 22 45			 2.00-4.00-6.00		 0.00-1.50-2.90	
RIGGIES	5-13				1.40-1.50-1.60	'		3.00-4.50-5.90	
	13-33				1.40-1.50-1.60	'	'	0.00-1.50-2.90	'
	33-63				1.50-1.60-1.70			0.00-1.50-2.90	
	63-90	52-85-90	5-8-40	5-7-18	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.11-0.13	0.00-1.50-2.90	0.0-0.5-1.0
	90-100	30-61-65	25-29-50	10-10-20	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
Oshtemo	 0-6	50-72-80	 1-19-50	 5-9-15	 1.40-1.55-1.70	 2.00-4.00-6.00	 0.06-0.09-0.12	 0.00-1.50-2.90	 1.0-2.0-3.0
	6-14		1-19-50	'	'	'	'	0.00-1.50-2.90	'
	14-35				'	'	'	0.00-1.50-2.90	'
	35-60	70-80-95	0-12-30	2-8-12	1.45-1.60-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
RogB:		 	 	 	 	 	 	l I	
Riddles	 0-8	50-56-80	10-33-45	 4-11-20	 1.40-1.55-1.70	2.00-4.00-6.00	 0.16-0.17-0.18	0.00-1.50-2.90	 1.0-1.5-2.0
	8-13				1.40-1.50-1.60	1	1	3.00-4.50-5.90	
	13-33	20-30-52	20-41-50	18-29-30	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.19	0.00-1.50-2.90	0.5-0.8-1.0
	33-63	30-61-70	10-25-50	10-14-20	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.16-0.19	0.00-1.50-2.90	0.0-0.2-0.5
	63-90	52-85-90		'	'	'	'	0.00-1.50-2.90	'
	90-100	30-61-65	25-29-50	10-10-20	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
Metea	0-9	70-80-90	 5-16-25	3-4-8	 1.40-1.55-1.70	 6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	 0.5-1.2-2.0
	9-28	70-81-100	0-15-25	0-4-10	1.60-1.70-1.80	6.00-13.00-20.00	0.06-0.09-0.11	0.00-1.50-2.90	0.0-0.2-0.5
	28-32	45-58-70	10-24-50	12-18-22	1.50-1.60-1.70	0.60-1.30-2.00	0.15-0.17-0.19	0.00-1.50-2.90	0.0-0.2-0.5
	32-44				'	'	'	3.00-4.50-5.90	'
	44-80	30-44-60	30-41-50	10-15-20	1.60-1.70-1.75	0.20-0.40-0.60	0.08-0.11-0.15	0.00-1.50-2.90	0.0-0.2-0.5
RogC2:			 	 	 			 	
Riddles	0-5	50-56-80	10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
	5-13	40-52-60	10-27-40	18-21-30	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	13-33				1.40-1.50-1.60	'	'	0.00-1.50-2.90	'
	33-63			'	1.50-1.60-1.70	'	'	0.00-1.50-2.90	'
	63-90 90-100	52-85-90			'	'	1	0.00-1.50-2.90	
	30-100	30-01-03	23-29-30	10-10-20 	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.6-1.0
Metea	0-7	70-80-90	5-16-25	3-4-8	1.40-1.55-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-1.2-2.0
					'	'	'	0.00-1.50-2.90	'
	28-32				'	1	1	0.00-1.50-2.90	
	32-44 44-80					'	'	3.00-4.50-5.90 0.00-1.50-2.90	'
	44-00	30-44-60	30-41-30	10-15-20 	1.60-1.70-1.75	0.20-0.40-0.60	0.08-0.11-0.15	0.00-1.50-2.90	0.0-0.2-0.5
RoqD2:		İ	İ	İ	İ		İ	İ	
Riddles				'	'	'	'	0.00-1.50-2.90	'
					'	'	'	3.00-4.50-5.90	'
					'	'	1	0.00-1.50-2.90	
	33-63 63-90				'	1	1	0.00-1.50-2.90	
					'	1	1	0.00-1.50-2.90	
			[
Metea	0-7	70-80-90			'	'	'	0.00-1.50-2.90	'
					'	'	'	0.00-1.50-2.90	'
					'	'	'	3.00-1.50-2.90	'
	44-80				'	'	'	0.00-1.50-2.90	'
		i	i	i I	I	I	i I	i	i

Table 17a.--Physical Properties of the Soils--Continued

Map symbol	Depth	Sand	 Silt	Clay	 Moist	Permeability	Available	 Linear	Organic
and soil name	Depen	Juliu		Cluy	bulk	(Ksat)	water	extensi-	matter
		i			density		capacity	bility	
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
i		[l				ļ.		
SdzA:	0 11	70 00 00	0 12 05						
Selfridge	0-11 11-25	1	0-13-25		'	6.00-13.00-20.00 5.95-12.97-19.98	'	•	'
	25-29				'	'	0.12-0.16-0.19	•	'
	29-32				'	'	0.15-0.18-0.20	•	
	32-80				'	1	0.08-0.11-0.15	•	'
Crosier	0-11		•		'	'	0.16-0.17-0.19	•	
	11-30 30-38		•		'	'	0.12-0.16-0.19	•	
	38-80		•		'	'	0.02-0.03-0.04	•	
		i					İ		
EdzaB:				!			!	!	
Selfridge		1	0-13-25		'	6.00-13.00-20.00	'	•	'
	11-25		1-19-20		'	5.95-12.97-19.98	'	•	'
	25-29				'	'	0.12-0.16-0.19	•	
	29-32 32-80				'	'	0.15-0.18-0.20	•	'
	32-00	30-43-32		10-13-20					0.5-0.6-1.0
Brems	0-9	70-81-90	0-13-15	1-6-12	1.50-1.58-1.65	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	9-27	70-81-90	0-13-15	1-6-12	1.50-1.58-1.65	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.2-0.5-1.0
	27-72	75-88-98	0-8-15	1-4-10	1.60-1.68-1.75	6.00-13.00-20.00	0.05-0.07-0.08	0.00-1.50-2.90	0.0-0.2-0.5
	72-80	75-88-98	0-8-15	1-4-6	1.60-1.68-1.75	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
SesA:		1	 	 	 	 	 	 	
Schoolcraft	0-14	25-44-52	20-40-50	12-16-20	1.30-1.45-1.60	0.57-1.28-1.98	0.18-0.20-0.22	0.00-1.50-2.90	 1.0-2.0-3.0
	14-29	20-55-70	5-18-50	18-27-35	1.40-1.55-1.70	0.57-1.28-1.98	0.12-0.16-0.19	3.00-4.50-5.90	0.0-0.2-0.5
j	29-39	45-73-80	5-10-40	10-17-25	1.50-1.60-1.70	2.00-4.00-6.00	0.09-0.12-0.15	0.00-1.50-2.90	0.5-0.8-1.0
	39-77	70-94-100	0-2 -25	1-4-10	1.55-1.63-1.70	6.00-13.00-20.00	0.06-0.07-0.08	0.00-1.50-2.90	0.0-0.2-0.5
	77-95	85-91-100	0-7 -25	0-2-10	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
SnlA:		 	 	 	 	 	 	 	
Southwest	0-10	10-12-20	50-64-70	18-24-27	1.30-1.45-1.60	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	1.0-2.0-3.0
j	10-23	5-10-20	50-62-70	18-28-39	1.40-1.55-1.70	0.60-1.30-2.00	0.18-0.20-0.22	0.00-3.50-5.90	1.0-2.0-3.0
j	23-34	5-12-30	40-60-70	18-28-39	1.40-1.55-1.70	0.20-0.40-0.60	0.20-0.22-0.24	0.00-3.50-5.90	3.0-4.5-6.0
	34-45	5-12-30	40-60-70	18-28-35	1.40-1.55-1.70	0.20-0.40-0.60	0.17-0.19-0.22	0.00-3.50-5.90	0.5-0.8-1.0
	45-75		•	•	'	'	0.21-0.22-0.24	•	'
	75-80	5-12-30	40-64-70 	15-24-32 	1.40-1.60-1.75	0.20-0.40-0.60	0.08-0.14-0.22	0.00-2.50-5.90	0.0-0.5-1.0
TmpA:			 	 	 			 	
Tracy	0 - 9	50-65-80	5-25-50	8-10-16	1.40-1.55-1.70	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	1.0-1.5-2.0
	9-47	25-60-80	5-26-50	8-14-18	1.50-1.60-1.70	0.60-1.30-2.00	0.09-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	47-60	45-60-90	5-19-30		'	0.60-1.30-2.00	1	0.00-1.50-2.90	
	60-86	70-85-100	0-7-30	3-8-8	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.2-0.5
TmpB:			 	 	 	<u> </u>	 	 	
Tracy	0-9	50-65-80	5-25-50	8-10-16	1.40-1.55-1.70	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	 1.0-1.5-2.0
i	9-47	25-60-80	5-26-50	8-14-18	1.50-1.60-1.70	0.60-1.30-2.00	0.09-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
j	47-60	45-60-90	5-19-30	3-21-24	1.50-1.60-1.70	0.60-1.30-2.00	0.09-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	60-86	70-85-100	0-7-30	3-8-8	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.2-0.5
Town G2 -									
<pre>ImpC2:</pre>	0-5	50-65-80	 5-25-50	 8-10-16	 1.40-1.55-1.70	 0.60-1.30-2.00	0.10-0.16-0.21	 0.00-1.50-2.90	 1.0-1.5-2 (
		1		1		'	0.09-0.14-0.18	•	
					'	'	0.09-0.14-0.18	•	'
			•		'	6.00-13.00-20.00	'	•	'
i			ļ	ļ			ļ	!	
TmpD:	0.0								
Tracy			•		'	'	0.10-0.16-0.21 0.09-0.14-0.18	•	'
			•		'	'	0.09-0.14-0.18	•	'
			•		'	6.00-13.00-20.00	'	•	'
	55-65		0 /-50	3-0-6					
		i .					i .		

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	silt 	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
İ			ĺ				ĺ	ĺ	ĺ
TnwA:							!		!
Troxel	0-50	'				0.60-1.30-2.00	1	0.00-1.50-2.90	
	50-70 70-91	'				0.60-1.30-2.00	0.15-0.18-0.20 0.05-0.09-0.13	•	
	70-31	30-00-00		12-10-20		2.00-4.00-0.00			0.0-0.2-0.5
TxuA:		İ	İ				i	İ	İ
Tyner	0-12	70-86-95	0-8-20			6.00-13.00-20.00	'	•	•
	12-20	70-87-95				6.00-13.00-20.00			
		70-94-100				6.00-13.00-20.00			
	41-80	88-95-100	0-2-10	1-3-6	1.55-1.63-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
TxuB:			 	 	 	 	1	 	
Tyner	0-12	70-86-95	0-8-20	3-6-8	1.40-1.48-1.55	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
İ	12-20	70-87-95	0-7-20	3-6-8	1.45-1.53-1.60	6.00-13.00-20.00	0.09-0.10-0.11	0.00-1.50-2.90	0.0-0.2-0.5
		70-94-100				6.00-13.00-20.00	1	•	
	41-80	88-95-100	0-2-10	1-3-6	1.55-1.63-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
TxuC:			 	 	 	 		 	
Tyner	0-12	70-86-95	0-8-20	3-6-8	 1.40-1.48-1.55	 6.00-13.00-20.00	 0.10-0.11-0.12	 0.00-1.50-2.90	 0.5-0.8-1.0
Tynci		70-87-95				6.00-13.00-20.00	'	•	•
		70-94-100				6.00-13.00-20.00	1	•	
j	41-80	88-95-100	0-2-10	1-3-6	1.55-1.63-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
I							1		
TxuD:									
Tyner	0-12 12-20					6.00-13.00-20.00 6.00-13.00-20.00	1	•	
		70-87-95				6.00-13.00-20.00	'	'	•
		88-95-100				6.00-13.00-20.00	1	•	
									İ
TxuF:							I		
Tyner		70-86-95				6.00-13.00-20.00	'	•	•
	12-20	70-87-95				6.00-13.00-20.00	'	'	
		70-94-100 88-95-100				6.00-13.00-20.00 6.00-13.00-20.00	1	•	
	41-00		0-2-10	1-3-0	1.55-1.05-1.70				0.0-0.2-0.5
Uam:			İ				İ	İ	İ
Udorthents,							I		
loamy.			[!		!

UdeA: Urban land.		İ	 			<u> </u>	 	l I	l I
orban rana.			 	 	 			 	
Bainter	0 - 9	45-67-85	5-26-50	2-7-12	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	9-13	45-71-85	5-24-50	2-5-12	1.45-1.58-1.70	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90	0.0-0.5-1.0
1						•	0.07-0.12-0.17	•	•
		45-78-85				'	0.05-0.11-0.17	•	
		45-70-80 85-91-100				0.60-1.30-2.00 20.00-20.00-20.00	0.10-0.16-0.21	•	
	34-60	02-31-100	0-7-15	0-2-10	1.60-1.70-1.80	20.00-20.00-20.00 	0.02-0.03-0.04	0.00-1.50-2.90 	0.0-0.2-0.5
UdeB:			İ				i	İ	
Urban land.							İ	ļ	
							ļ.	!	
Bainter						'	0.08-0.15-0.22	•	
		'				•	0.07-0.13-0.18	•	•
		'				'	0.07-0.12-0.17 0.05-0.11-0.17	•	•
		'				•	0.10-0.16-0.21	•	•
		85-91-100				20.00-20.00-20.00	'	•	•
		1	I	ı	I	I	I	I	I

Table 17a.--Physical Properties of the Soils--Continued

UdkA: Urban land. Brady	0-5 5-13 13-31 31-44 44-54 54-80 0-9 9-37 37-56 56-80	45-71-85 45-70-90 45-78-85 45-70-80 85-91-100 	5-5-50 5-5-50 0-7-15 5-28-35 5-20-35 5-13-35	2-5-12 10-14-18 10-17-22 20-25-30 0-2-10 	1.45-1.58-1.70 1.45-1.58-1.70 1.25-1.48-1.70 1.40-1.50-1.60 1.60-1.70-1.80	2.00-4.00-6.00 2.00-4.00-6.00 2.00-4.00-6.00 0.60-1.30-2.00 20.00-20.00-20.00	0.07-0.13-0.18 0.07-0.12-0.17 0.05-0.11-0.17 0.10-0.16-0.21 0.02-0.03-0.04	Pat	0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.8-1.0
Urban land. Bainter UdkA: Urban land. Brady UdzA: Urban land.	5-13 13-31 31-44 44-54 54-80 0-9 9-37 37-56 56-80	45-71-85 45-70-90 45-78-85 45-70-80 85-91-100 	5-24-50 5-16-50 5-5-50 5-5-50 0-7-15 5-28-35 5-20-35 5-13-35	2-5-12 10-14-18 10-17-22 20-25-30 0-2-10 	1.45-1.58-1.70 1.45-1.58-1.70 1.25-1.48-1.70 1.40-1.50-1.60 1.60-1.70-1.80	2.00-4.00-6.00 2.00-4.00-6.00 2.00-4.00-6.00 0.60-1.30-2.00 20.00-20.00-20.00	0.07-0.13-0.18 0.07-0.12-0.17 0.05-0.11-0.17 0.10-0.16-0.21 0.02-0.03-0.04	0.00-1.50-2.90 0.00-1.50-2.90 0.00-1.50-2.90 3.00-4.50-5.90	0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.8-1.0
UdkA: Urban land. Brady UdzA: Urban land.	5-13 13-31 31-44 44-54 54-80 0-9 9-37 37-56 56-80	45-71-85 45-70-90 45-78-85 45-70-80 85-91-100 	5-24-50 5-16-50 5-5-50 5-5-50 0-7-15 5-28-35 5-20-35 5-13-35	2-5-12 10-14-18 10-17-22 20-25-30 0-2-10 	1.45-1.58-1.70 1.45-1.58-1.70 1.25-1.48-1.70 1.40-1.50-1.60 1.60-1.70-1.80	2.00-4.00-6.00 2.00-4.00-6.00 2.00-4.00-6.00 0.60-1.30-2.00 20.00-20.00-20.00	0.07-0.13-0.18 0.07-0.12-0.17 0.05-0.11-0.17 0.10-0.16-0.21 0.02-0.03-0.04	0.00-1.50-2.90 0.00-1.50-2.90 0.00-1.50-2.90 3.00-4.50-5.90	0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.8-1.0
UdkA: Urban land. Brady UdzA: Urban land.	13-31 31-44 44-54 54-80 0-9 9-37 37-56 56-80	45-70-90 45-78-85 45-70-80 85-91-100 15 5-28-35 5-20-35 5-13-35	10-14-18 10-17-22 20-25-30 0-2-10 2-10-15 5-15-22 5-7-20	1.45-1.58-1.70 1.25-1.48-1.70 1.40-1.50-1.60 1.60-1.70-1.80 1.35-1.45-1.55	2.00-4.00-6.00 2.00-4.00-6.00 0.60-1.30-2.00 20.00-20.00-20.00	0.07-0.12-0.17 0.05-0.11-0.17 0.10-0.16-0.21 0.02-0.03-0.04	0.00-1.50-2.90 0.00-1.50-2.90 3.00-4.50-5.90	0.0-0.5-1.0 0.0-0.5-1.0 0.0-0.8-1.0	
UdkA: Urban land. Brady UdzA: Urban land.	31-44 44-54 54-80 0-9 9-37 37-56 56-80	45-78-85 45-70-80 85-91-100 	5-5-50 5-5-50 0-7-15 5-28-35 5-20-35 5-13-35	10-17-22 20-25-30 0-2-10 	1.25-1.48-1.70 1.40-1.50-1.60 1.60-1.70-1.80 	2.00-4.00-6.00 0.60-1.30-2.00 20.00-20.00-20.00 	0.05-0.11-0.17 0.10-0.16-0.21 0.02-0.03-0.04 	0.00-1.50-2.90 3.00-4.50-5.90	0.0-0.5-1.0
UdkA: Urban land. Brady UdzA: Urban land.	0-9 9-37 37-56 56-80	45-70-80 85-91-100 52-62-80 50-65-80 52-80-85	5-5-50 0-7-15 5-28-35 5-20-35 5-13-35	20-25-30 0-2-10 	1.40-1.50-1.60 1.60-1.70-1.80 	0.60-1.30-2.00 20.00-20.00-20.00 	0.10-0.16-0.21	3.00-4.50-5.90	0.0-0.8-1.0
UdkA: Urban land. Brady UdzA: Urban land.	0-9 9-37 37-56 56-80		0-7-15 5-28-35 5-20-35 5-13-35	0-2-10 2-10-15 5-15-22 5-7-20	 	 20.00-20.00-20.00 	0.02-0.03-0.04	•	'
Urban land. Brady Udza: Urban land.	9-37 37-56 56-80	50-65-80 52-80-85	5-20-35 5-13-35	5-15-22 5-7-20	'	 2.00-4.00-6.00	 - -	 	
Brady UdzA: Urban land.	9-37 37-56 56-80	50-65-80 52-80-85	5-20-35 5-13-35	5-15-22 5-7-20	'	 2.00-4.00-6.00	 	 	
UdzA: Urban land.	9-37 37-56 56-80	50-65-80 52-80-85	5-20-35 5-13-35	5-15-22 5-7-20	'	 2.00-4.00-6.00			
UdzA: Urban land.	37-56 56-80 0-9	52-80-85	5-13-35	5-7-20	1.35-1.45-1.55		0.12-0.14-0.16	0.00-1.50-2.90	 2.0-3.0-4.0
UdzA: Urban land.	56-80					2.00-4.00-6.00	0.12-0.15-0.17	0.00-1.50-2.90	0.0-0.0-0.0
UdzA: Urban land.	0 - 9	90-93-99 	1-5-10			'	'	0.00-1.50-2.90	'
Urban land.				0-2-10 	1.40-1.45-1.50 	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90 	0.0-0.0-0.0
Auten		1 1	 	 	 	 	 	 	
	9-22	 30-33-52	 30-49-50	 11-18-22	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90	 2.0-3.0-4.0
1	22-80	30-40-70 75-85-100			'	'	'	3.00-4.50-5.90	'
	22-80	/3-83-100	0-8-20	1-7-10					
UeaA: Urban land.		 	 	 	 	 	 	 - -	
Crosier	0-11	25-45-50	30-40-50	5-15-25	1.20-1.43-1.65	0.60-1.30-2.00	0.16-0.17-0.19	0.00-1.50-2.90	1.0-2.0-3.0
1	11-30				'	'	'	3.00-4.50-5.90	'
1	30-38 38-80				'	'	'	0.00-1.50-2.90	'
		į		į	İ			į	
UeqA: Urban land.		 	 	 	 	 	 	 	
Gilford	0-14	50-70-80	10-15-45	10-15-20	1.40-1.55-1.70	'	'	0.00-1.50-2.90	'
	14-32				'	'	'	0.00-1.50-2.90	'
1	32-38 38-80	70-85-95 75-89-98	0-8-30 0-6-25	1	'	'	'	0.00-1.50-2.90 0.00-1.50-2.90	'
UewA: Urban land.		 	 	 	 	 	 - -	 	 -
		jj			j 	j 		<u> </u>	
Brems	0-9 9-27				'	6.00-13.00-20.00 6.00-13.00-20.00	'	•	'
		75-88-98			'	6.00-13.00-20.00	1	•	'
į	72-80	75-88-98	0-8-15	1-4-6	1.60-1.68-1.75	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
Morocco	0-9	 70-85-90	 1-10-15	 1-5-6	 1.40-1.50-1.60	 6.00-13.00-20.00	 0.10-0.11-0.12	 0.00-1.50-2.90	 0.5-1.2-2.0
		70-94-100			'	6.00-13.00-20.00	1	•	'
	60-80	85-97-100 	0-1-10 	1-2-6 	1.50-1.60-1.70 	6.00-13.00-20.00 	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
UfbA: Urban land.				 	 		 	 	
Brookston	0 - 9	 30-40-50	30-40-50	 14-20-27	1.35-1.43-1.50	 0.60-1.30-2.00	0.20-0.21-0.22	 0.00-1.50-2.90	3.0-4.0-5.0
	9-48				'	'	'	3.00-4.50-5.90	'
1	48-68 68-80				'	'	1	0.00-1.50-2.90	'
UfhA: Urban land.						 			

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat) 	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
UfhA:					 	 	 	 	
Coloma	0-12	70-91-100	0-5-10	0-4-10	1.35-1.50-1.65	6.00-13.00-20.00	0.05-0.07-0.09	0.00-1.50-2.90	0.5-1.2-2.0
İ		70-92-100			'	6.00-13.00-20.00	'	'	•
	47-80	70-93-100	0-2-25	2-5-12	1.50-1.58-1.65	2.00-11.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.2-0.5
UfhB: Urban land.			 	 	 	 	 	 	
Coloma	0-12	 85-91-100	 0-5-10	 0-4-10	 1.35-1.50-1.65	 6.00-13.00-20.00	0.05-0.07-0.09	 0.00-1.50-2.90	 0.5-1.2-2.0
İ	12-47	70-92-100	0-5-25	0-3-10	1.35-1.50-1.65	6.00-13.00-20.00	0.05-0.09-0.12	0.00-1.50-2.90	0.0-0.2-0.5
	47-80	70-93-100	0-2-25	2-5-12	1.50-1.58-1.65	2.00-11.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.2-0.5
UfhC: Urban land.		 	 	 	 	 	 	 	
Coloma	0-12	85-91-100	0-5-10	0-4-10	1.35-1.50-1.65	6.00-13.00-20.00	0.05-0.07-0.09	0.00-1.50-2.90	0.5-1.2-2.0
		70-92-100			'	6.00-13.00-20.00	'	'	•
	47-80	70-93-100	0-2-25	2-5-12	1.50-1.58-1.65	2.00-11.00-20.00	0.03-0.06-0.08	0.00-1.50-2.90	0.0-0.2-0.5
UfmA: Urban land.		 	 	 	 	 	 	 	
Coupee	0-21	8-15-20	50-60-70	20-25-27	1.30-1.45-1.60	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	2.0-3.0-4.0
					'	'	0.12-0.14-0.16	'	•
		70-88-100 87-90-100		'	'	6.00-13.00-20.00 20.00-20.00-20.00	1	•	
UfrA: Urban land.		 		 	 	 	 	 	
Del Rey	0 - 9	0-12-20	 45-58-70	27-30-40	1.30-1.40-1.50	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	2.0-2.5-3.0
İ	9-33	'			'	'	0.12-0.16-0.20	•	•
	33-90	0-15-40	40-55-80	10-30-40	1.50-1.60-1.75	0.06-0.13-0.20	0.09-0.10-0.11	3.00-4.50-5.90	0.0-0.2-0.5
UftA: Urban land.		 	 	 	 	 	 	 	
Elston	0-20	50-65-85	5-25-50	8-10-15	1.40-1.50-1.60	2.00-4.00-6.00	0.12-0.16-0.20	0.00-1.50-2.90	2.0-3.0-4.0
	20-34				'	'	0.12-0.15-0.18	'	•
	34-72 72-80	50-80-90 87-91-100	0-13-25	'	'	6.00-13.00-20.00 20.00-20.00-20.00	'	'	•
	72-80		0-6-10	1-3-3	1.60-1.70-1.80	20.00-20.00-20.00			0.0-0.2-0.5
UfzA: Urban land.		 	 	 	 	 	 	 	
Mishawaka	0-12	50-73-85	5-17-50	5-10-15	1.40-1.55-1.70	1	0.13-0.15-0.17	•	
		1				'	0.13-0.15-0.17	•	
		50-81-90 87-95-100				'	0.09-0.12-0.14	•	•
		87-96-100		'	'	1	0.02-0.05-0.07	•	
							ļ		
UgaA: Urban land.		 	 	 	 	 	 	 	
Morocco					'	6.00-13.00-20.00	•	•	•
		70-94-100 85-97-100		'	'	6.00-13.00-20.00 6.00-13.00-20.00	1	•	
	00-80	 03-31-T00	 0-T-T0	1-2-6 	 1	0.00-13.00-20.00 	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.∡-0.5

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat) 	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
UglA: Urban land.		 	 	 		 	 -	 	
Osolo	0 - 9	70-80-90	 0-15-25	 3-5-8	 1.40-1.50-1.60	 6.00-13.00-20.00	 0.10-0.11-0.12	 0.00-1.50-2.90	 0.5-1.2-2.0
	9-25	70-83-90	0-12-25	3-5-8	1.50-1.55-1.60	6.00-13.00-20.00	0.09-0.10-0.11	0.00-1.50-2.90	0.0-0.2-0.5
		87-95-100				6.00-13.00-20.00	•	•	
	40-80	87-91-100	0-5-10	0-4-5	1.50-1.60-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90	0.0-0.2-0.5
UgrA: Urban land.		 	 	 		 	 	 	
Rensselaer	0-15	30-41-50	30-38-50	11-21-27	1.30-1.45-1.60	0.60-1.30-2.00	0.20-0.21-0.22	0.00-1.50-2.90	3.0-4.5-6.0
	15-38					'	0.15-0.18-0.20	•	'
	38-42					'	0.15-0.17-0.19	•	
ļ	42-76 76-80				1.50-1.60-1.70 1.60-1.70-1.75	'	0.10-0.14-0.18	•	
 	76-80	30-45-60	30-42-50	10-13-20	1.60-1.70-1.75	0.06-0.13-0.20		0.00-1.50-2.90	0.0-0.2-0.5
UgsA: Urban land.		 	 	 		 	 - -	 	
Riddles	0 - 8	50-56-80	 10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
	8-13	40-52-60	10-27-40	18-21-30	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	13-33					'	0.15-0.17-0.19	•	'
	33-63					'	0.12-0.16-0.19	•	
ļ	63-90	52-85-90			1.40-1.55-1.70 1.80-1.90-2.00	'	0.08-0.11-0.13	•	'
	90-100	30-61-65	25-29-50 	10-10-20	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
Oshtemo	0 - 9	50-72-80	1-19-50	5-9-15	1.40-1.55-1.70	2.00-4.00-6.00	0.06-0.09-0.12	0.00-1.50-2.90	1.0-2.0-3.0
	9-14		1-19-50			'	0.06-0.09-0.12	•	'
	14-35					'	0.10-0.14-0.18	•	
l	35-60 60-80	70-80-95 87-88-100	0-12-30			6.00-13.00-20.00 20.00-20.00-20.00	•	•	
			0 3 20						
UgsB: Urban land.		 	 	 		 - -	 - -	 - -	
Riddles	0 - 8	50-56-80	10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
	8-13					1	0.15-0.17-0.18	3.00-4.50-5.90	0.5-0.8-1.0
	13-33					'	0.15-0.17-0.19	•	'
ļ	33-63					'	0.12-0.16-0.19	•	'
	63-90 90-100	52-85-90 30-61-65			1.40-1.55-1.70	'	0.08-0.11-0.13	•	
İ									
Oshtemo	0 - 9					2.00-4.00-6.00	•	•	'
						2.00-4.00-6.00	•	•	
ļ						2.00-4.00-6.00	•	•	'
		87-88-100				6.00-13.00-20.00 20.00-20.00-20.00	•	•	'
UgvA: Urban land.		 		 					
İ		İ		İ			İ	İ	
Tyner		70-86-95				6.00-13.00-20.00	•	•	
		70-87-95				6.00-13.00-20.00	•	•	
ļ		70-94-100				6.00-13.00-20.00	•	•	'
	41-80	88-95-100	0-2-10	1-3-6	11.55-1.63-1.70	6.00-13.00-20.00	10.05-0.06-0.07	U.UU-1.50-2.90	10.0-0.2-0.5

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
UgvB:									
Urban land.				 	 	 	 	 	
Tyner	0-12 12-20	70-86-95			'	6.00-13.00-20.00 6.00-13.00-20.00	'	•	'
		70-94-100 88-95-100		'	'	6.00-13.00-20.00 6.00-13.00-20.00	1	•	
	41-80	88-95-100	0-2-10	1-3-6	1.55-1.63-1.70	6.00-13.00-20.00	0.05-0.06-0.07	0.00-1.50-2.90 	0.0-0.2-0.5
UgvC: Urban land.				 			 		
Tyner	0-12	70-86-95	0-8-20	3-6-8	1.40-1.48-1.55	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	 0.5-0.8-1.0
	12-20	70-87-95			'	6.00-13.00-20.00	'	•	'
		70-94-100 88-95-100			'	6.00-13.00-20.00 6.00-13.00-20.00	0.06-0.07-0.08	•	
UgvD: Urban land.				 	 	 	 	 	
Tyner	0-12	70-86-95	0-8-20	3-6-8	 	6.00-13.00-20.00	0 10-0 11-0 12	 	 0 5-0 8-1 0
lyner	12-20	70-87-95			'	'	0.09-0.10-0.11	•	'
		70-94-100			'	6.00-13.00-20.00	'	•	'
	41-80	88-95-100	0-2-10	1-3-6 	1.55-1.63-1.70 	6.00-13.00-20.00 	0.05-0.06-0.07	0.00-1.50-2.90 	0.0-0.2-0.5
UhmA: Urban land.				 	 		 	 	
Hillsdale	0-8	45-67-85	5-26-50	2-7-12	 1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	 1.0-2.0-3.0
	8-14 14-44	45-71-85		'	'	2.00-4.00-6.00	'	0.00-1.50-2.90 0.00-1.50-2.90	'
	44-84				'	0.60-3.30-6.00	'	0.00-1.50-2.90	'
UhmB: Urban land.				 	 	 	 	 	
orban rand.				 	 			 	
Hillsdale	0-8	45-67-85			'	2.00-4.00-6.00	'	0.00-1.50-2.90	'
	8-14 14-44	45-71-85			'	2.00-4.00-6.00	'	0.00-1.50-2.90 0.00-1.50-2.90	'
	44-84	50-60-85	5-30-50	5-10-15	1.60-1.70-1.80	0.60-3.30-6.00	'	0.00-1.50-2.90	'
UhoC: Urban land.				 -	 	 	 	 -	
Hillsdale	0-8	45-67-85	5-26-50	 2-7-12	 1.40-1.55-1.70	 2.00-4.00-6.00	 0.08-0.15-0.22	 0.00-1.50-2.90	 1.0-2.0-3.0
					'	'	0.07-0.13-0.18	•	
	14-44 44-84				'		0.12-0.15-0.18	•	
į		i i		İ	i İ	i İ	į		
Oshtemo					'	'	0.08-0.15-0.22	•	'
				'	'	'	0.10-0.14-0.18	•	'
		70-80-95 87-88-100			'	6.00-13.00-20.00	'	•	'
	00-80	07-08-100	0-9-10	U-3-5 	 	20.00-20.00-20.00 	0.02-0.03-0.04	 	
UhoD: Urban land.				 	 	 	 	 	
Hillsdale	0 - 8	 45-67-85	5-26-50	 2-7-12	 1.40-1.55-1.70	 2.00-4.00-6.00	 0.08-0.15-0.22	 0.00-1.50-2.90	 1.0-2.0-3.0
	8-14				'	'	0.07-0.13-0.18	•	'
	14-44 44-84				'	'	0.12-0.15-0.18 0.10-0.14-0.18	•	'
	-1 01	50 00-05	2 20-20	2 10-13					,

Table 17a.--Physical Properties of the Soils--Continued

and soil name	Depth	Sand 	Silt	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
UhoD: Oshtemo	0-9	 E0 71 90	0 10 50	 E 10 20	 1 40 1 55 1 70	 2.00-4.00-6.00	 	 0.00-1.50-2.90	 1
Osircemo	9-14		0-14-50			'	'	0.00-1.50-2.90	'
i	14-35		0-14-50				'	0.00-1.50-2.90	'
į	35-60	70-80-95	0-12-30	2-8-12	1.45-1.60-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-0.8-1.0
	60-80	87-88-100	0-9-10	0-3-5	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
UhpC:		 		 			 	 	
Urban land.		į							
Hillsdale	0-8	45-67-85	5-26-50	 2-7-12	 1.40-1.55-1.70	 2.00-4.00-6.00	 0.08-0.15-0.22	 0.00-1.50-2.90	 1.0-2.0-3.0
į	8-14	45-71-85	5-24-50	2-5-12	1.45-1.58-1.70	2.00-4.00-6.00	0.07-0.13-0.18	0.00-1.50-2.90	0.0-0.5-1.0
	14-44					0.60-1.30-2.00	0.12-0.15-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	44-84	50-60-85	5-30-50	5-10-15	1.60-1.70-1.80	0.60-3.30-6.00	0.10-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0
Tracy	0-5	50-65-80	5-25-50	8-10-16	1.40-1.55-1.70	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	 1.0-1.5-2.0
	5-47					'	'	0.00-1.50-2.90	'
	47-60					'	'	0.00-1.50-2.90	'
	60-86	70-85-100 	0-7-30	3-8-8	1.60-1.70-1.80 	6.00-13.00-20.00	0.05-0.08-0.10 	0.00-1.50-2.90	0.0-0.2-0.5
UhpD:		i							
Urban land.					 		 	 	
Hillsdale	0-8	45-67-85	5-26-50	2-7-12	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	 1.0-2.0-3.0
	8-14		5-24-50			•	'	0.00-1.50-2.90	'
	14-44					0.60-1.30-2.00	'	0.00-1.50-2.90	'
	44-84	50-60-85	5-30-50	5-10-15 	1.60-1.70-1.80 	0.60-3.30-6.00	0.10-0.14-0.18 	0.00-1.50-2.90	0.5-0.8-1.0
Tracy	0-5					'	'	0.00-1.50-2.90	'
	5-47					'	'	0.00-1.50-2.90	'
	47-60 60-86	45-60-90 70-85-100				'	'	0.00-1.50-2.90	'
į		į						į	
UhwA: Urban land.		 			 		 	 	
		i						İ	
Martinsville	0-13					0.60-1.30-2.00		0.00-1.50-2.90	
	13-35 35-53				1.50-1.60-1.70 1.50-1.60-1.70	'	'	3.00-4.50-5.90 0.00-1.50-2.90	'
	53-60					0.60-1.30-2.00	1	0.00-1.50-2.90	
ThwB:									
Urban land.					 	 	 	 	
Martinsville	0-5 5-35					'	'	0.00-1.50-2.90 3.00-4.50-5.90	'
I							'	0.00-1.50-2.90	'
į							1	0.00-1.50-2.90	
UhwC:					 		 	 	
Urban land.									
Manuta	٥. ٦		20 40 50						
Martinsville	0-5 5-35						1	0.00-1.50-2.90 3.00-4.50-5.90	
						•	'	0.00-1.50-2.90	'
į							1	0.00-1.50-2.90	
UkaA:		 		 	 	 	 	 	
Urban land.		i		İ	i İ			İ	
Maumee	0-23	70-80-00	0-14-25	2-6-10	 1 60-1 60-1 75	 6.00-13.00-20.00	 0 10-0 11-0 12	0 00-1 50-2 90	 2 0-3 0-4 0
	0-43	10-00-90	0-14-25	2-0-10		'	0.10-0.11-0.12	10.00-1.50-2.90	'
Madillee	23-61	70-91-98	1-6-20	2-3-10	1.60-1.70-1.80	6.00-13.00-20.00	0.06-0.08-0.11	0.00-1.50-2.90	0.0-0.5-1.0

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
į								İ	
UkeA: Urban land.		 	 	 	 	 	 	 	
Milford	0-18	'	•	•	•	'	'	3.00-4.50-5.90	
	18-50 50-60	1		1		'	'	3.00-4.50-5.90 3.00-4.50-5.90	
 	50-60	2-10-30	40-60-70	20-30-42	1.40-1.60-1.75	0.20-0.40-0.60	0.10-0.16-0.22	3.00-4.50-5.90	0.0-0.5-1.0
UkxA:		İ	İ	İ	İ		İ	İ	İ
Urban land.			 -	 -	 		 	 	
Oshtemo	0 - 9	50-71-90	0-19-50	5-10-20	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3.0
	9-14	'	•			'	'	0.00-1.50-2.90	
ļ	14-35 35-60		0-14-50			'	'	0.00-1.50-2.90 0.00-1.50-2.90	
		87-88-100				20.00-20.00-20.00	'	'	
_								!	
UkxB: Urban land.			 	 	 		 	 -	
Oshtemo	0 - 9	50-71-90	0-19-50	5-10-20	1.40-1.55-1.70	2.00-4.00-6.00	 0.08-0.15-0.22	0.00-1.50-2.90	1.0-2.0-3.0
į	9-14	'	•			'	'	0.00-1.50-2.90	
	14-35 35-60		0-14-50			'	'	0.00-1.50-2.90 0.00-1.50-2.90	
		87-88-100				20.00-20.00-20.00	'	'	
į		İ	İ	İ	İ		İ	İ	İ
UkxC: Urban land.		 	 -	 -	 		 	 -	
Oshtemo	0-9	50-71-90	 0-19-50	5-10-20	1.40-1.55-1.70	2.00-4.00-6.00	0.08-0.15-0.22	0.00-1.50-2.90	 1.0-2.0-3.0
	9-14	'	•			'	'	0.00-1.50-2.90	
	14-35 35-60		0-14-50		•	'	'	0.00-1.50-2.90 0.00-1.50-2.90	
ļ		87-88-100				20.00-20.00-20.00	'	'	
_									
UmfB: Urban land.			 	 	 		 	 	
					İ			İ	
Riddles	0-8				•	'	'	0.00-1.50-2.90	
	8-13 13-33	'	•			•	'	3.00-4.50-5.90 0.00-1.50-2.90	
į	33-63	'	•				1	0.00-1.50-2.90	1
	63-90	52-85-90	•	•	•	'	'	0.00-1.50-2.90	
	90-100	30-61-65	25-29-50 	10-10-20	1.80-1.90-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.5-0.8-1.0
Metea	0 - 9	70-80-90	5-16-25	3-4-8	1.40-1.55-1.70	6.00-13.00-20.00	'	•	
ļ		'	•				1	0.00-1.50-2.90	
		'	•	•	•	'	'	0.00-1.50-2.90 3.00-4.50-5.90	
İ	44-80	'					'	0.00-1.50-2.90	
UmfC:									
Umrc: Urban land.		 	 	 	 		 	 	
Riddles	0-5	50-56-80	10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
į	5-13	'	•			'	'	3.00-4.50-5.90	
		'	•			'	'	0.00-1.50-2.90 0.00-1.50-2.90	
		'	•			'	'	0.00-1.50-2.90	
· ·		30-61-65	•			'	'	'	0.5-0.8-1.0

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat) 	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
!						[
UmfC:	0.7	70 00 00							
Metea	0-7 7-28	70-80-90	5-16-25		'	6.00-13.00-20.00 6.00-13.00-20.00	1	1	
i	28-32						0.15-0.17-0.19	1	
į	32-44				'	•	0.15-0.17-0.19	3.00-4.50-5.90	0.0-0.2-0.5
!	44-80	30-44-60	30-41-50	10-15-20	1.60-1.70-1.75	0.20-0.40-0.60	0.08-0.11-0.15	0.00-1.50-2.90	0.0-0.2-0.5
UmfD: Urban land.		 	 	 	 -	 -	 -	 -	
ordan rand.		 	 	 	 	 	 	 	
Riddles	0-5	50-56-80	10-33-45	4-11-20	1.40-1.55-1.70	2.00-4.00-6.00	0.16-0.17-0.18	0.00-1.50-2.90	1.0-1.5-2.0
1	5-13	40-52-60	10-27-40	18-21-30	1.40-1.50-1.60	0.60-1.30-2.00	0.15-0.17-0.18	3.00-4.50-5.90	0.5-0.8-1.0
Ţ	13-33				'	•	0.15-0.17-0.19	'	•
	33-63	•			'		0.12-0.16-0.19	1	
l I	63-90 90-100		5-8-40		'		0.08-0.11-0.13	1	
	30 100	30 01 03	23 23 30						
Metea	0 - 7	70-80-90	5-16-25	3-4-8	1.40-1.55-1.70	6.00-13.00-20.00	0.10-0.11-0.12	0.00-1.50-2.90	0.5-1.2-2.0
!		70-81-100			'	•	0.06-0.09-0.11	'	•
	28-32 32-44				'	•	0.15-0.17-0.19	'	•
	32-44 44-80	•			'		0.15-0.17-0.19	1	
i									
UmpA: Urban land.		 	 	 	 	 	 	 	
Schoolcraft	0-14	25-44-52	 20-40-50	 12-16-20	 1.30-1.45-1.60	 0.57-1.28-1.98	0.18-0.20-0.22	 0.00-1.50-2.90	 1.0-2.0-3.0
į	14-29				'	•	0.12-0.16-0.19	'	•
1	29-39	45-73-80	5-10-40	10-17-25	1.50-1.60-1.70	2.00-4.00-6.00	0.09-0.12-0.15	0.00-1.50-2.90	0.5-0.8-1.0
		70-94-100			'	6.00-13.00-20.00	1	1	
I	77-95	85-91-100	0-7-25	0-2-10	1.60-1.70-1.80	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90 	0.0-0.2-0.5
UmuA:			 						!
Urban land.		 			 	 			 -
Southwest	0-10	10-12-20	 50-64-70	 18-24-27	 1.30-1.45-1.60	 0.60-1.30-2.00	0.22-0.23-0.24	 0.00-1.50-2.90	 1.0-2.0-3.0
i	10-23				1.40-1.55-1.70	•	0.18-0.20-0.22	'	•
1	23-34	5-12-30	40-60-70	18-28-39	1.40-1.55-1.70		0.20-0.22-0.24	'	
[34-45				'	•	0.17-0.19-0.22	'	•
	45-75 75-80				'		0.21-0.22-0.24	1	
i I	75-00	3-12-30		15-24-52				 	
UmwA: Urban land.		 	 	 	 	 	 	 	
 Tracv	0-9	 E0 65 80	25 50	0 10 10	1 40 1 55 1 70	0.60-1.30-2.00	 0.10-0.16-0.21	0 00 1 50 2 22	1101522
IIacy					'		0.09-0.14-0.18	'	•
					'	•	0.09-0.14-0.18	'	•
į	60-86	70-85-100	0-7-30	3-8-8	1.60-1.70-1.80	6.00-13.00-20.00	0.05-0.08-0.10	0.00-1.50-2.90	0.0-0.2-0.5
IImrvD .		 	 	 	 	 		 	
UmwB: Urban land.		 			 	 	 	 	
	0-9	50_65 00	5_25 50	 Q_10_16	 1 40_1 EE 1 70	0.60-1.30-2.00	 0.10-0.16-0.21	0 00-1 50 2 00	 1 0_1 = 2 0
Tracy				0-T0-T0	/ U	U.00-1.30-4.00			
Tracy					'		•	'	•
i	9-47	25-60-80	5-26-50	8-14-18	1.50-1.60-1.70	0.60-1.30-2.00	0.09-0.14-0.18	0.00-1.50-2.90	0.5-0.8-1.0

Table 17a.--Physical Properties of the Soils--Continued

		1							1
Map symbol	 Depth	Sand	 Silt	 Clay	 Moist	 Permeability	Available	 Linear	 Organic
and soil name	 				bulk density	(Ksat)	water	extensi-	matter
	In	Pct	Pct	Pct	g/cc	 In/hr	capacity In/in	Pct	Pct
UmwC:									
Urban land.	 		 	 	 	 		 -	
Tracy	 0-5	50-65-80	 5-25-50	 8-10-16	 1.40-1.55-1.70	0.60-1.30-2.00	0.10-0.16-0.21	 0.00-1.50-2.90	 1.0-1.5-2.0
	5-47				'	0.60-1.30-2.00	0.09-0.14-0.18	•	'
	'	45-60-90 70-85-100			'	0.60-1.30-2.00 6.00-13.00-20.00	0.09-0.14-0.18	•	'
		į	į	İ			į	į	
UmwD: Urban land.	 		 	 	 	 	 	 	
Tracy	0-9	50-65-80	5-25-50	8-10-16	1.40-1.55-1.70	0.60-1.30-2.00	0.10-0.16-0.21	0.00-1.50-2.90	 1.0-1.5-2.0
	9-47				'	0.60-1.30-2.00	0.09-0.14-0.18	•	'
	'	45-60-90 70-85-100			'	0.60-1.30-2.00	0.09-0.14-0.18	•	'
	60-86 	/0-85-100	0-7-30	3-8-8 	1.60-1.70-1.80	6.00-13.00-20.00 	0.05-0.08-0.10	0.00-1.50-2.90 	0.0-0.2-0.5
UmxA: Urban land.	 		 	 	 	 	i I	 	
Troxel	 0-50	5-20-40	 50-56-80		 1 20_1 35_1 50	 0.60-1.30-2.00	 0.20-0.23-0.26	0 00-1 50-2 90	 3 0-4 0-5 0
110xe1	50-70	'			'	0.60-1.30-2.00	0.15-0.18-0.20	•	'
	70-91	1				2.00-4.00-6.00	0.05-0.09-0.13	•	'
UnoA:	 			 	 	 			
Urban land.	 		 	 	 	 	 	 	
Whitaker	0-17				'	0.60-1.30-2.00	0.18-0.21-0.24	•	'
	17-39				'	0.60-1.30-2.00	0.15-0.17-0.19	•	'
	39-48 48-86				'	0.60-3.30-6.00	0.10-0.14-0.18 0.19-0.20-0.21	•	'
UnqB: Urban land.	 		 	 	 	 		 	
Williamstown	 0-7	25-35-52	 30-46-50	 14-19-24	 1.30-1.45-1.60	 0.60-1.30-2.00	0.10-0.17-0.24	0.00-1.50-2.90	 1.0-2.0-3.0
	7-34	30-36-60	20-35-50	20-29-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	34-39			'	'	0.20-0.40-0.60	0.08-0.11-0.15	•	'
	39-80	30-45-60	30-40-50	10-15-20 	1.75-1.80-2.00 	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Crosier	0-11	25-45-50	30-40-50	5-15-25	1.20-1.43-1.65	0.60-1.30-2.00	0.16-0.17-0.19	0.00-1.50-2.90	1.0-2.0-3.0
	11-30	'			'	0.20-0.40-0.60	0.12-0.16-0.19	•	
	30-38			'	'	0.20-0.40-0.60	0.12-0.14-0.16	•	
UntA: Urban land.					 	 		 	
orban land.	 		 	 	 	 		 	
Wunabuna,		İ	İ					İ	
drained	0-21			'	'	0.60-1.30-2.00	0.22-0.23-0.24	'	
	32-38				'	0.60-1.30-2.00	0.18-0.20-0.22	•	'
	38-80				'	0.20-3.10-6.00	0.35-0.40-0.45	•	
Usl:	 		 	 -	 - -	 - -	 	 - -	
rubbish.				 					
W: Water.	 	1	 	 	 	 	I I	 	
	 		İ						
		•					•	-	-

Table 17a.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand 	Silt 	Clay 	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensi- bility	Organic matter
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct
	111	FCC	FCC 	FCC 	g/cc 	111/111	111/111	FGC	FCC
VcnAI:									
Waterford	0 - 8	30-45-52	30-40-50	10-15-27	1.30-1.45-1.60	2.00-4.00-6.00	0.13-0.16-0.18	0.00-1.50-2.90	1.0-2.0-3.0
İ	8-41	30-65-80	5-18-50	10-17-30	1.45-1.58-1.70	2.00-4.00-6.00	0.07-0.12-0.18	0.00-1.50-2.90	0.5-0.8-1.0
	41-46	75-85-100	1-10-20	1-5-1	1.45-1.60-1.75	20.00-20.00-20.00	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
	46-50	70-78-95	1-15-30	3-7-12	1.60-1.70-1.80	6.00-13.00-20.00	0.06-0.08-0.11	0.00-1.50-2.90	0.0-3.0-5.0
	50-80	87-90-100	1-7-12	0-3-5	1.45-1.60-1.75	20.00-20.00-20.00	0.01-0.02-0.03	0.00-1.50-2.90	0.0-0.2-0.5
NoaA: Williamstown	0-7	05 05 50						 0.00-1.50-2.90	
WIIIIamstown	7-34	'			'	'	•	3.00-4.50-5.90	
	34-39	'			'	'	•	0.00-1.50-2.90	'
	39-80	'			'	'	•	0.00-1.50-2.90	'
VoaB2:		İ	İ	İ			İ	İ	
Williamstown	0-5	25-35-52	30-46-50	14-19-24	1.30-1.45-1.60	0.60-1.30-2.00	0.10-0.17-0.24	0.00-1.50-2.90	1.0-2.0-3.0
İ	5-34	'			'	'	•	3.00-4.50-5.90	'
	34-39	1				'	•	0.00-1.50-2.90	'
	39-80	30-45-60	30-40-50	10-15-20	1.75-1.80-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
7 GO				 					
NoaC2:	0 5	05 05 50							
Williamstown	0-5 5-34	'			'	'	•	0.00-1.50-2.90 3.00-4.50-5.90	
	34-39	'			'	'	•	0.00-1.50-2.90	'
	39-80	'			'	'	•	0.00-1.50-2.90	'
	05 00								
NobB:		İ	İ	İ	İ		İ	İ	İ
Williamstown	0-7	25-35-52	30-46-50	14-19-24	1.30-1.45-1.60	0.60-1.30-2.00	0.10-0.17-0.24	0.00-1.50-2.90	1.0-2.0-3.0
	7-34	30-36-60	20-35-50	20-29-35	1.50-1.60-1.70	0.60-1.30-2.00	0.12-0.14-0.16	3.00-4.50-5.90	0.5-0.8-1.0
	34-39	30-32-60	30-45-50	15-23-27	1.50-1.60-1.70	0.20-0.40-0.60	0.08-0.11-0.15	0.00-1.50-2.90	0.0-0.5-1.0
	39-80	30-45-60	30-40-50	10-15-20	1.75-1.80-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
Crosier		'			'	'	•	0.00-1.50-2.90	'
	11-30 30-38	'			'	'	•	3.00-4.50-5.90 0.00-1.50-2.90	'
	38-80	'			'	'	•	0.00-1.50-2.90	'
	30-00	30-43-00	3-40-30	10-13-20	1.75-1.00-2.00 	0.00-0.13-0.20	0.02-0.03-0.04		0.0-0.2-0. 2
VrxAN:			 	 					
Wunabuna,		İ		 					<u> </u>
drained	0-21	8-15-20	50-60-70	20-25-27	1.30-1.45-1.60	0.60-1.30-2.00	0.22-0.23-0.24	0.00-1.50-2.90	2.0-3.0-4.0
	21-32	0-16-20	40-46-70	20-38-40	1.20-1.33-1.45	0.60-1.30-2.00	0.18-0.20-0.22	3.00-4.50-5.90	1.0-1.5-2.0
	32-38	0-13-20	40-41-70	20-46-50	1.20-1.33-1.45	0.60-1.30-2.00	0.18-0.20-0.22	3.00-4.50-5.90	4.0-6.0-8.0
I	38-80	0-0 -10	0-0-10	0-0-10	0.15-0.20-0.60	0.20-3.10-6.00	0.35-0.40-0.45	0.00-1.50-2.90	40-75 -90
VtbA:									
Whitaker	0-17 17-39	'			'	'	•	0.00-1.50-2.90	'
	39-48	'		'	'	'	•	3.00-4.50-5.90 0.00-1.50-2.90	'
	48-86	'			'	'	•	0.00-1.50-2.90	'
	40-00	10-70-95	10-20-70 	3-10-16	1.30-1.60-1.70	0.60-3.30-6.00	0.19-0.20-0.21	0.00-1.50-2.90	0.5-0.6-1.0
ujB:			 	! 	! 	! 	1 		!
Williamstown	0-7	25-35-52	30-46-50	14-19-24	1.30-1.45-1.60	0.60-1.30-2.00	0.10-0.17-0.24	0.00-1.50-2.90	1.0-2.0-3.0
-	7-34	'		'	'	'		3.00-4.50-5.90	
i	34-39	'			'	'	•	0.00-1.50-2.90	'
j	39-80	30-45-60	30-40-50	10-15-20	1.75-1.80-2.00	0.01-0.10-0.20	0.02-0.03-0.04	0.00-1.50-2.90	0.0-0.2-0.5
İ									
Moon	0-9	70-81-90		'		0 6.00-13.00-20.00	'	'	
		70-86-100			'	6.00-13.00-20.00	•	'	'
	23-35	'			'	'	•	0.00-1.50-2.90	'
	35-45 45-80	'			'	'	•	3.00-4.50-5.90	'
								0.00-1.50-2.90	

Table 17b.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer.

Absence of an entry indicates that data were not estimated. The abbreviation "rv" stands for representative value. Representative values are indicative of conditions that occur most commonly.)

Map symbol	Depth	Ero	sion fa	ctors		Wind erodi-	length	Slope gradient
and soil name		 Kw	 Kf	 T	bility group	bility index	(rv)	(rv)
	In			<u>-</u>	9200P		Ft	Pct
		ĺ	İ	İ	İ	į į		İ
AahAK:								
Abscota	0-5 5-14	.15 .17	1.15	5	2	134	75	1.0
	14-60	.15	1.15	 				İ
		İ	į	į	i	i i		į
AatAN:								
Ackerman, drained				1	2	134	200	0.5
	8-14 14-80	.28 .15	.28	 				
	14-00	.15	.13	 	 			
Abhan:			i	İ	i	i i		i
Adrian, drained	0-9		j	2	2	134	200	1.0
	9-34							
	34-80	.15	.15					
AbhAU:		 		 	 			
Adrian, undrained	0-34	 		2	2	134	200	1.0
	34-80	.15	.15	İ	İ	i		ĺ
		İ	İ	İ	İ	i i		İ
ApuAN:								
Antung, drained	0-9			2	2	134	200	1.0
	9-12 12-80			 				1
	12-80	.15	.13	 	 			
AxvA:		İ	i	İ	İ	i i		İ
Auten	0 - 9	.20	.20	4	5	56	300	1.0
	9-22	.32	.37					
	22-80	.05	.10					
BaaA:		 	l I	l I	 			1
Bainter	0-9	.17	.20	4	3	86	300	1.0
	9-13	.17	.20	İ		i		ĺ
	13-31	.10	.10	ĺ	ĺ	İ		İ
	31-44	.05	1.10					
	44-54	.20	.20					
	54-80	.02	.02	 	 			
BaaB:		 	i	 	 			i
Bainter	0-9	.17	.20	4	3	86	200	3.0
	9-13	.17	.20			İ		İ
	13-31	.10	1.10					
	31-44	.05	.10					
	44-54 54-80		.20	l I	 			1
	34-00	.02	.02	I I	 			I I
BaaC2:			İ	İ	İ			İ
Bainter	0-5	.17	.20	4	3	86	200	7.0
	5-13		.20					
	13-31		.10					
	31-44		1.10					1
	44-54 54-80	.20	.20	I I	I I			I
	74,00	.02	.02	I I	I I			1

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors		Wind erodi-	length	Slope gradient
and soil name	 	 Kw	Kf	 T	group	bility index	(rv)	(rv)
	 In	l Kw	KI	-	group	Index	Ft	Pct
		l		 				
BbmA:	İ	İ	İ	İ	İ	i		İ
Baugo	0-11	.43	.43	4	5	56	250	1.0
	11-29	.43	.43					
	29-36	.43	.43					
	36-56	.10	.10					
	56-80	.43	.49					
P3							İ	
BmgA: Blount	 0-7	.43	.43	 4	 6	48	200	1.0
BIOUNC	7-23	.43	.43	** 	0	40	200	1 1.0
	23-42	.43	.43	 	 		 	i
	42-80	.43	.43	İ		i		i
	İ	İ	i	İ	İ	i		i
BshA:	İ	İ	i	İ	İ	į i		i
Brady	0-9	.15	.15	4	3	86	300	1.0
	9-37	.24	.24					
	37-56	.20	.20					
	56-80	.10	.05					
BsxA:				_				
Brems	0-9	.05	.05	5	2	134	300	1.0
	9-27	.05	.05				İ	
	27-72 72-80	.02 .02	.02	l I	 			
	72-80 	.02	1 .02	l I	 	1	 	1
Morocco	0-9	.05	.05	5	2	134	300	1.0
	9-60	.02	.02		, <u>-</u>	202		
	60-80	.02	.02	İ	İ	i		i
	İ	İ	İ	İ		į i		İ
BteA:	ĺ	ĺ	ĺ	ĺ	ĺ			İ
Brems	0-9	.05	.05	5	2	134	300	1.0
	9-27	.05	.05					
	27-72	.02	.02					
	72-80	.02	.02					!
BuuA:					_			
Brookston	0-9	.24	.24	5	5	56	250	1.0
	9-48 48-68	.20 .28	.24	l I	 			
	68-80	.43	.49	l I	 	1	 	1
	00-00 	•=5	.43	 	 			
CmbAI:	! 	l I	İ	 		İ	 	İ
Cohoctah	0-13	.24	.24	5	5	56	200	1.0
	13-56		.24	İ	İ	i		i
	56-80	.02	.05	ĺ	ĺ			İ
CnbA:								
Coloma	0-12	.05	.05	5	1	250	200	1.0
	12-47		.15					!
	47-80	.15	.15					
Coh D	 	l I	1				 	1
CnbB: Coloma	 0-12	 0=		 5	 1	250	150	4.0
COTOINA	0-12 12-47	'	.05	5] <u>1</u>	250	150	1 4.0
	12-47 47-80		1.15	I I	I I	 	 	I I
	1 .7-00	•±5	.13	I I	I I	 	 	1
CnbC:	l I	i I	İ	i I			! 	1
Coloma	0-12	.05	.05	5	1	250	100	7.0
	12-47		.15	i	i	-	· · · · · · · ·	1
	47-80		.15	İ	i i	į		İ
	i	i	i	i	i	i	I	i

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	Wind erodi-	Wind erodi-		Slope gradient
and soil name				Ī	•	bility		(rv)
	İ	Kw	Kf	T	group	index		İ
	In			1			Ft	Pct
CnbD:			!					!
Coloma	0-12	.05	.05	5	1	250	100	14.0
	12-47 47-80	.15	.15		 			
	1 27-00 	.15	.15	 	l I	1	 	1
CrrA:			i	i	 		 	i
Coupee	0-21	.37	.37	4	5	56	300	1.0
	21-33	.32	.32	į	İ	į i		į
	33-52	.10	1.15					
	52-98	.02	.10					
CvdA:					_			
Crosier	0-11 11-30	.37	37	4	5	56	200	1.0
	30-38	.37	.43		l I		 	1
	38-80	.37	.43	i	 		 	i
				i	İ	i		i
CvdB:	İ		İ	i	İ	i		İ
Crosier	0-11	.37	.37	4	5	56	200	3.0
	11-30	.32	.37					
	30-38	.37	.43					
	38-80	.37	.43					!
CwkA: Crumstown		17		 4	 3			1 1 0
Crumstown	0-9 9-19	.17	1.17	4	3 	86	200	1.0
	19-45		.10	i	 			
	45-100		.02		 		 	i
			İ	i	İ	i		i
CwkB:	ĺ		ĺ	İ	ĺ	İ		İ
Crumstown	0-9	.17	.17	4	2	134	200	3.0
	9-19	.15	1.15					
	19-45	.10	.10					!
	45-100	.02	.02					
D 3							İ	
DcrA: Del Rey	 0-9	.43	.43	 4	 7	38	150	1.0
Der Rey	9-33	.43	.43	1 *	, 	30	130	1.0
	33-90	.43	.43	i	İ			i
	İ		i	i	İ	i		i
EchAN:	İ		į	į	İ	į i		į
Edwards, drained	0-9			1	2	134	200	0.5
	9-24							
	24-80	.28	.28	!				
EchAU:			I				 	1
Edwards, undrained	0-24			 1	 2	134	200	0.5
Lamarus, undramed	24-80		.28	1	ı 4	134	<u>2</u> 00	0.5
		•		i		İ		İ
EcrAN:	İ		į	i	İ	j		İ
Edselton, drained	0-10		ļ	1	2	134	200	1.0
	10-21							
	21-48		.28	!				
	48-80	.15	.15					
E-mail.			I				 	1
EcrAU: Edselton, undrained	0.21			 1	 2	134	 200	1.0
Edserton, undrained	0-21 21-48		.28	, *	4 	134 	∠∪∪ 	1 1.0
	48-80		1.15	i	i I		! 	i

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	 Depth 	Ero	sion fac	ctors	erodi-	Wind erodi- bility	length	Slope gradient (rv)
	İ	Kw	Kf	Т	group	index		
	In	l	Ī	l		1	Ft	Pct
EmeA: Elston	 0-20	 .15	 .15	 4	 3	 86	300	1.0
EISCOII	20-34	.15	.15	1	3 	80	300	1 1.0
	34-72	1 .10	.10	 	 			
	72-80	.02	1.10	İ				
	ĺ	ĺ	ĺ	ĺ				
GczA:								
Gilford	0-14	.15	.15	4	3	86	200	1.0
	14-32	.10	1.10					
	32-38	.02	.02		 			
	38-80	.02	.02	l I	 			1
GdnA:	! 	l I	 	 	 			
Gilford	0-14	.10	.10	4	3	86	200	1.0
	14-32	.10	.10	İ	İ	į		İ
	32-38	.02	.02					
	38-80	.02	.02					
_		!						
HfbAN:				 2		124	200	1 1 0
Henrietta, drained	0-12	 .28		<u>4</u> 	2	134	200	1.0
	43-60	.28	.28	l I	 	 		1
	43-00	.20	.20	 	 			
HfbAU:	İ	İ	i	İ		İ		İ
Henrietta, undrained	0-12		i	2	2	134	200	1.0
	12-43	.28	.28					
	43-80	.28	.28					
HkkA:				 5		0.0	200	1 1 0
Hillsdale	0-8 8-14	.20 .17	.20 .20	5	3	86	200	1.0
	14-44	.20	.20	l I	 	l		1
	44-84	.28	.32	 				
	İ	İ	i	İ		i		İ
HkkB:	ĺ	ĺ	İ	ĺ				
Hillsdale	0-8	.20	.20	5	3	86	200	3.0
	8-14	.17	.20					
	14-44	.20	.20					
	44-84	.28	.32		 			
HknC2:	l I	l I	 	l I	 	 		
Hillsdale	0-5	.20	.20	5	 3	86	150	7.0
	5-14	.17	.20					
	14-44	.20	.20	İ		į į		į
	44-84	.28	.32	ĺ				
Oshtemo	0-6	.17	.17	4	3	86	150	7.0
	6-14	.20	.20					
	14-35		.20					
	35-60 60-80	.17	1.17	 	l I	1		1
	00-00 	.02	.10	l I	 	1		1
HknD2:		İ						
Hillsdale	0-5	.20	.20	5	3	86	150	14.0
	5-14	.17	.20	ĺ		İ		
	14-44	.20	.20					
	44-84	.28	.32					
	!	ļ		[
Oshtemo	0-6	.17	1.17	4	3	86	150	14.0
	6-14		.20		 			
	14-35 35-60		.20 .17	I I	 	 		I I
	•		.17	I I	l I	I I		1
	60-80	.02						1

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fac	ctors	Wind erodi-		Slope length	Slope gradien
and soil name			77.6		-	bility	(rv)	(rv)
	In	Kw	Kf	T 	group	index	Ft	Pct
						į į		
<pre>kpC2: Hillsdale</pre>	0-5	 .20	.20	 5	 3	86	150	7.0
miiisuale	5-14	1.17	.20	J	J		130	7.0
	14-44	.20	.20	İ		i i		i
	44-84	.28	.32	İ		į		į
Tracy	0-5	 .24	.24	 5	 3	86	200	7.0
	5-47	.17	.20	İ		i i		İ
	47-60	.10	.15					
	60-86	.10	.15	 	 			
kpD2:					 			
Hillsdale	0 - 5	.20	.20	5	3	86	150	14.0
	5-14	.17	.20					
	14-44		.20					
	44-84	.28 	.32	 	 			
Tracy	0-5	.24	.24	5	3	86	200	14.0
İ	5-47	.17	.20			į į		İ
	47-60	.10	.15					
	60-86	.10	1.15	 	 			
tbAN:		 			 			
Houghton, drained	0-9	i		3	2	134	200	1.0
	9-80			 				
tbAU:		 		 	 			
Houghton, undrained	0-80			3	2	134	200	1.0
aaAK:		 	 	 	 			
Jamestown	0-11	.32	.32	4	5	48	100	1.0
	11-33	.32	.32					
	33-44	.28	.32					
	44-52	.10	1.10					
	52-80	.43 	.49	 	 			
faA:		İ	İ	İ	İ	i i		i
Martinsville	0-13	.37	.37	5	5	56	200	1.0
	13-35	.28	.28					
	35-53 53-60	.28	.28	 	 			I I
	33 00	.57			 	i i		İ
faB2:	0.5						200	
Martinsville	0-5 5-35		.37	5 	5 	56	200	3.0
	35-53		.28	ı İ	! 			
	53-60		.37			i i		İ
faC2:		 		 	 			
Martinsville	0-5	.37	.37	 5	 5	56	200	7.0
	5-35		.28		İ	į i		İ
	35-53		.28			į į		İ
	53-60	.37	.37					
fran:		I 		 	 			
Madaus, drained	0-9			1	2	134	200	1.0
	9-48	.28	.28			l i		
	48-80	.17	.17					
frAU:		! 		 	! 			
Madaus, undrained	0-9		i	1	2	134	200	1.0
						1		i .
	9-48	.28	.28					I

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors		Wind erodi-	length	Slope gradient
and soil name	 	17	 77.6	 T		bility	(rv)	(rv)
	 In	Kw	Kf	<u>+</u> 	group	index	Ft	Pct
	111	l I	 	 	 		FC	FCC
MgcA:		İ	İ	İ	İ	İ		İ
Maumee	0-23	.05	.05	5	2	134	150	1.0
	23-61	.10	.10	ĺ	ĺ			İ
	61-80	.10	1.10					
w_32w								
MgdAN: Martisco, drained	 0-12	 	 	 1	 2	134	200	0.5
marcisco, dramed	12-80	.28	.28	-	4	134	200	0.5
		İ		İ	İ	i		İ
MhaA:		ĺ		ĺ	ĺ			
Maumee	0-23	.05	.05	5	2	134	150	1.0
	23-61	.10	.10					
	61-80	.10	.10					
MhbA:	 	l I	 	l I	 			
Maumee	 0-23	.05	.05	 5	2	134	150	1.0
	23-61	1.10	1.10	İ	 I			
	61-80	.10	.10	İ	İ	i		İ
				ĺ	İ	İ		
MmbC2:								
Miami	0-5	.37	.37	4	5	56	150	7.0
	5-31	.32	.32					
	31-36	.37	.43					
	36-80	.32	.37	 	 			
MmdC3:	 	l I		 	 			
Miami	0-4	.32	.32	3	6	48	150	7.0
	4-31	.32	.32	İ	İ	i		İ
	31-36	.37	.43	İ	İ	i		İ
	36-80	.32	.37	İ	İ	İ		İ
MmdD3: Miami	 0-4	 .32	.32	 3	 6	48	150	14.0
MIAMI	4-31	.32	.32	1	l G	10	1 130	1 11.0
	31-36	.37	.43	 	 			İ
	36-80	.32	.37	İ	İ			İ
		ĺ	ĺ	ĺ	ĺ			
MouA:		!						
Milford	0-18	.28	.28	5	6	48	300	1.0
	18-50	.43	.43					
	50-60	.43	.43	l I	 			
MsaA:	 			İ				
Mishawaka	0-12	.05	.05	3	3	86	300	1.0
	12-18		.05	ĺ	İ	İ		
	18-25	.05	.05					
	25-58		.02					
	58-80	.02	.02					
MtaD2.	 	 		 	 			
MtsB2: Morley	 0-5	.43	.43	 4	 6	48	150	4.0
MOTTEN	0-3 5-20		32	, "		40	1 730	4.0
	20-29		32	İ	i I			İ
	29-80		37	İ		İ		İ
		İ	İ	İ	İ	į		İ
MtsC2:								
Morley		.43	.43	4	6	48	150	9.0
	5-20		.32					
	20-29		.32					
	29-80	.32	.37	1	I	1		1

Table 17b.--Physical Properties of the Soils--Continued

Non-ar-1-1	 Dest-b	Ero	sion fa	ctors	Wind	Wind		Slope
Map symbol and soil name	Depth					erodi-		gradient
and soll name	 	 Kw	 Kf	 T	group	bility index	(EV)	(rv)
	In		i i	İ		i i	Ft	Pct
			1					1
MubD3:						20	150	
Morley	0-4 4-20	.32 .32	.32	3	7	38	150	15.0
	20-29	.32	.32		 			
	29-80	.32	.37	i	 			i
i	İ	İ	i	į	İ	į i		į
MvhAN:								
Moston, drained	'			1	2	134	200	1.0
	8-24							
	24-48	.28	.28					
	48-80	1.15	.15		 			
MvhAU:	 	l I			 			
Moston, undrained	0-24			1	2	134	200	1.0
	24-48	.28	.28	i				i
i	48-80	.15	.15	į		į i		į
i		ĺ	ĺ			İ		İ
MvkA:								
Morocco	0-9	.05	.05	5	2	134	300	1.0
	9-60	.02	.02					
	60-80	.02	.02					
MwzAN:	 	l I		1	 			
Muskego, drained	 0-9	 		1	l 2	134	200	1.0
Muskego, drained	9-27			-	2	134	200	1
	27-80	.28	.28	i	 			i
i		İ	i	İ		i		i
MwzAU:	İ	İ	İ	İ	İ	į i		İ
Muskego, undrained	0-27			1	2	134	200	1.0
	27-80	.28	.28					
-1 -								
OkrA: Oshtemo	 0-9	 .17	1.17	 4	 3	86	200	1.0
Ositemo	9-14	1 .17	.17	4	3	00	200	1 1.0
	14-35	.20	.20		 			
	35-60	1.17	1.17	i	 			i
i	60-80	.02	.10	i		i		i
i	İ	İ	į	į		į i		į
OkrB:		ĺ	ĺ			İ		İ
Oshtemo	0-9	.17	.17	4	2	134	200	3.0
	9-14	.17	1.17					
	14-35	.20	.20					
	35-60	.17	.17					
	60-80	.02	.10		 			
OkrC2:	l I	l I	1		 			1
Oshtemo	0-6	.17	.17	4	l 2	134	200	7.0
	6-14		.17	i	 			
i	14-35		.20	i		i		i
i	35-60		.17	Ì		İ		İ
İ	60-80	.02	.10					
								1
OkrD:								
Oshtemo	0-9	.17	1.17	4	2	134	200	14.0
		.17	.17	1				1
	14-35	.20	.20	1	I	1		1
				i	i I	i		i
	35-60		1.17	į	 			į

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	 Depth	Ero	sion fa	ctors		Wind erodi-	length	Slope gradient
and soil name	l I	 Kw	 Kf	 T	group	bility	(rv)	(rv)
	 In	Xw	KI	1	group 	I	 Ft	Pct
		l I	i			İ	10	
OlcA:	İ	İ	į	i	İ	į		į
Oshtemo	0-9	.17	.17	4	3	86	200	1.0
	9-14	.20	.20					
	14-35	.20	.20					
	35-60	.17	.17					
	60-80	.02	.10					
-1 -								
OlcB:			15	4	 3		 200	2.0
Oshtemo	0-9 9-14	.17 .20	.17	4	3 	86	200 	3.0
	14-35	.20	.20	I	 	1	 	1
	35-60	1.17	1.17		 		 	
	60-80	.02	.10	i		i	' 	i
	İ	İ	i	i	İ	i	 	i
OlcC2:	ĺ		Ì	İ	İ	İ		Ì
Oshtemo	0-6	.17	.17	4	3	86	150	7.0
	6-14	.20	.20					
	14-35	.20	.20					
	35-60	.17	.17					
	60-80	.02	.10					!
OlcD:								
Oshtemo	0-9	.17	.17	4	3	86	150	14.0
	9-14	.20	.20				 	1
	14-35 35-60	.20 .17	.20	1	1	1	 	
	60-80	.02	1.10	l	 	1	 	
	00 00	.02		i	 	İ	 	i
OmgA:	i I	i I	i	i		İ	! 	i
Osolo	0-9	.05	.05	5	2	134	300	1.0
	9-25	.15	.15	İ	İ	i	İ	i
	25-40	.02	.02	İ	į	į	İ	į
	40-80	.02	.02					
PaaAN:								
Palms, drained	0-35			2	2	134	200	1.0
	35-80	.37	.37					
PaaAU:	0.35	l I	1	2		1 124	200	1 1 0
Palms, undrained	0-35	 .37	.37	4	2	134	200	1.0
	33-80	.37 	.3/	I	 	1	 	1
Pmg:	l I	l I	1	i	 		 	
Pits, gravel				i			50	15.0
	İ	İ	i	i	İ	i	İ	i
PxlA:	į	İ	i	İ	İ	i	İ	i
Psammaquents							75	0.5
Pxo:			[
Psamments							75	3.0
QuiA:								
Quinn		.28	.28	4	5	56	300	1.0
	7-47 47-80	.24	.24		I I	1	 	1
	4:/-80 	.05	.10		I I	I I	 	1
QujA:	I 	I I	I		I I	I	 	1
Quinn	0-7	.15	.15	4	5	56	300	1.0
~	7-47	.24	.24	i -	i			
	47-80		1.10	i	i	i		i
			1					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	Wind erodi-	Wind erodi-	Slope gradient	
and soil name	ĺ				bility	bility	(rv)	(rv)
		Kw	Kf	Т	group	index		
	In						Ft	Pct
RenA:	 		 	 	 	 	 	
Rensselaer	0-15	.24	.24	5	 5	56	250	1.0
	15-38	.24	.24	İ	İ			
	38-42	.20	.20		ĺ	İ		
	42-76		.37					
	76-80	.43	.49					
ReyA:	 		I I	l l	 	 	 	
Rensselaer	0-15	.24	.24	5	5	56	250	1.0
	15-38	.24	.24	İ	İ	į i		İ
	38-42	.20	.20					
	42-76		.37					
	76-80	.43	.49		 		İ	
RopA:	 		I I	l l	 	 	 	
Riddles	0-8	.28	.28	5	3	86	200	1.0
	8-13	.32	.32	İ	İ	į i		İ
	13-33	.32	.32					
	33-63		.43					
	63-90 90-100		.24	l I	 			
	50-100	. 52	.57	 	 		 	
Oshtemo	0-9	.17	.17	4	3	86	200	1.0
	9-14	.17	.17	į	İ	į i		İ
	14-35		.20					
	35-60		1.17					
	60-80	.02	1.10	l I	 			
RopB:			İ				 	
Riddles	0-8	.28	.28	5	3	86	200	3.0
	8-13	.32	.32					
	13-33		.32					
	33-63		.43					
	63-90 90-100		.24	l I	 			
	50-100	. 52	.57	l I	 		 	
Oshtemo	0-9	.17	.17	4	2	134	200	3.0
	9-14	.17	.17					
	14-35		.20					
	35-60	.17	.17				İ	
	60-80 	.02	1.10	l I	l I	 	 	
RopC2:			i	İ		i		
Riddles	0-5	.28	.28	5	3	86	200	7.0
	5-13		.32					
	13-33		.32					
	33-63 63-90		.43	l I	 			
	03-90 90-100		37	l I	 			
	i i		i	į	İ	į i		į
Oshtemo	0-6	.17	.17	4	3	86	200	7.0
	6-14		.17					
	14-35		.20	l I	 			
	35-60 60-80		.17 .10	I I	 	 	 	1
	55.55						! 	
RopD2:	i i					İ		
Riddles		.28	.28	5	3	86	200	14.0
	5-13		.32					
	13-33		.32	1	 		 	
	33-63 63-90		.43	I I	l I	 	 	
	03-90 90-100		37	İ	 		! 	İ
		-	1	i	l	i	' 	i

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors			length	Slope gradient
and soil name		_		_		bility	(rv)	(rv)
	<u> </u>	Kw	Kf	T	group	index		 D-t
	In		1	1	 	 	Ft	Pct
RopD2:			i	i				İ
Oshtemo	0-6	.17	.17	4	3	86	200	14.0
	6-14	.17	.17					
	14-35	.20	.20					
	35-60	.17	.17	!				
	60-80	.02	.10	1				
RoqB:	 		1		 			1
Riddles	0-8	.28	.28	5	5	56	200	3.0
11141100	8-13	.32	.32		 		200	
	13-33	.32	.32	i		i		i
	33-63	.37	.43	i	İ	į i		i
	63-90	.24	.24	İ				İ
	90-100	.32	.37					
Metea	0-9	.17	.17	4	2	134	200	3.0
	9-28	.15	.15					
	28-32 32-44	.20	.20	1	 			
	44-80	.37	.43	1	 	1		
	11 00		113		 			i
RoqC2:	i i		i	i	' 	i		i
Riddles	0-5	.28	.28	5	5	56	200	7.0
	5-13	.32	.32	İ				İ
	13-33	.32	.32					
	33-63	.37	.43					
	63-90	.24	.24	!				!
	90-100	.32	.37					
Metea		17	17	4	 2	134		7.0
metea	0-7 7-28	.17 .15	1.17	4	4 	1 134	200	1 7.0
	28-32	.20	.20	1	 	1		1
	32-44	.37	.37	i		İ		İ
	44-80	.37	.43	i		i		i
	i i		İ	i		į i		į
RoqD2:								
Riddles	0-5	.28	.28	5	5	56	150	14.0
	5-13	.32	.32					
	13-33	.32	.32	!				!
	33-63	.37	.43					
	63-90	.24	.24		 			
	90-100	.32	.37	1	 	1		1
Metea	0-7	.17	.17	4	2	134	150	14.0
	7-28		.15	-	- 	202	250	
	28-32		.20	i		i		i
	32-44	.37	.37	į	İ	į		į
	44-80	.37	.43					
SdzA:				[
Selfridge			.17	5	2	134	200	1.0
	11-25		.15	1	 			1
	25-29 29-32		.24	I	l I	 		1
	29-32 32-80		.24	I	l I	 		1
	J2-00 	,	•====	İ	 			I
Crosier	0-11	.37	.37	4	5	56	200	1.0
	11-30		.37	i	 			İ
	30-38		.43	İ		į		İ
	38-80	.37	.43					
	l İ		1		I			I

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	 Depth	Ero	sion fa	ctors	Wind erodi-	Wind erodi-	Slope length	Slope gradient
and soil name					bility	bility	(rv)	(rv)
		Kw	Kf	Т	group	index		
	In						Ft	Pct
dzaB:	0 11	17	17	 5	 2	134	 200	3.0
Selfridge	0-11 11-25	.17 .15	.17 .15	5	<u>4</u> 	1 134	200 	3.0
	25-29	.24	.24	 	l I	 		1
	29-32	.24	.24	i	l I			
	32-80	.37	.43	i	İ			İ
	İ	İ	i	i	İ	i		İ
Brems	0-9	.05	.05	5	2	134	150	3.0
	9-27	.05	.05					
	27-72	.02	.02					
	72-80	.02	.02					
	!							
esA:					_			
Schoolcraft	0-14	.28	.28	4	5	56	165	1.0
	14-29 29-39	.28 .17	.28	1	1			1
	39-39	.05	.05	I I	l I			1
	77-95	.02	.03	 	l I	 		1
		.02	.02	İ	 			
nlA:	İ	İ	i	İ	İ	i		İ
Southwest	0-10	.37	.37	5	6	48	200	1.0
	10-23	.37	.37	į	İ	į i		İ
	23-34	.28	.28	Ì	ĺ	İ		
	34-45	.37	.37					
	45-75	.28	.28					
	75-80	.43	.43					
_								
mpA:				-				
Tracy	0-9 9-47	.24	.24	5	3	86	200	1.0
	47-60	.17 .10	.20 .15	1	l I			1
	60-86	1.10	.15	İ	 			
				İ	İ	i		İ
mpB:	İ	İ	į	İ	İ	į i		į
Tracy	0-9	.24	.24	5	3	86	200	3.0
	9-47	.17	.20					
	47-60	.10	.15					
	60-86	.10	.15	!				
				1				
mpC2:	 0-5	24		 5	 3	 86	200	7.0
Tracy	0-5 5-47	.24 .17	.24	5	3 	00	200 	1 7.0
	47-60	1.10	1.15	 	l I	 		1
	60-86	1		İ	 			
				İ	İ	i		İ
mpD:	İ	İ	i	İ	İ	į i		İ
Tracy	0-9	.24	.24	5	3	86	200	14.0
	9-47	.17	.20					
	47-60	'	1.15					
	60-86	.10	.15					
_								
nwA: Troxel								1 1 0
rroxet	0-50 50-70	.20 .37	.20 .37	5	6	48	200	1.0
	50-70 70-91	.37	.37	I I	l I	 		I I
	,0-91 	•20 	•20		l I			
'xuA:		İ	i	İ	i I			İ
Tyner	0-12	.10	.10	5	2	134	300	1.0
-	12-20	'	.10	İ	İ	į		İ
	20-41	'	.05					
	41-80	.02	.02					
	1	ı	I	I .	I.	1		1

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Ero 	sion fa	ctors		Wind erodi- bility		Slope gradient (rv)
		Kw	Kf	Т	group	index	, ,	' '
	In					[Ft	Pct
Marra D.		 					İ	
TxuB: Tyner	0-12	.10	1.10	5	2	134	200	3.0
	12-20	.10	.10	i	 İ			
i	20-41	.05	.05	į	j	į	İ	į
	41-80	.02	.02		!			!
TxuC:		 		1	 			
Tyner	0-12	.10	1 .10	l l 5	 2	134	150	7.0
	12-20	.10	.10	İ	İ			i
i	20-41	.05	.05	į	İ	į		į
	41-80	.02	.02	!	!	[!
Para D.		 		1	 			
TxuD: Tyner	0-12	 .10	1 .10	5	2	134	 100	14.0
-7-10-1	12-20	1.10	1.10		 	201	200	
	20-41		.05	İ	İ	i		İ
	41-80	.02	.02	ĺ	ĺ	İ		İ
TxuF: Tyner	0-12	 .10	1.10	 5	 2	134	100	32.0
171101	12-20	1.10	1.10		 I	202	200	52.0
	20-41	.05	.05	İ	İ	i		i
	41-80	.02	.02	ĺ	ĺ	İ		İ

Uam: Udorthents, loamy		 	 	 	 		 100	6.0
odor enemes / roung		! 					100	0.0
UdeA:		ĺ	İ	İ	İ	İ	ĺ	İ
Urban land.								
Bainter	0-9	 .17	.20	 4	 3	86	 300	1.0
Builder	9-13	1.17	.20	-			300	1.0
	13-31	.10	.10	İ	İ	i		i
i	31-44	.05	.10	į	j	į	İ	į
	44-54	.20	.20					
	54-80	.02	.02					
UdeB:		l I	1	1	 		 	1
Urban land.		İ	İ	İ		i		i
i		į	İ	į	İ	į	İ	į
Bainter	0 - 9	.17	.20	4	3	86	200	3.0
	9-13	.17	.20	!				!
	13-31		.10					
	31-44 44-54	.05	10	1	 		 	
	54-80		.02					i
		ĺ	İ	İ	İ	İ	ĺ	İ
UdeC:		ļ						
Urban land.		 			 			
Bainter	0-5	 .17	.20	4	3	86	200	7.0
	5-13		.20	i -	İ			
	13-31		.10	Ì		İ		İ
	31-44		.10					
	44-54		.20		ļ			1
	54-80	.02	.02		 		 	
UdkA:	 	 			 		 	1
Urban land.	' 			İ		i	' 	İ
		İ	İ	İ	I	i		İ
Brady	0 - 9		.15	4	3	86	300	1.0
	9-37		.24					
	37-56	.20	.20					1
	56-80	.10	.05	1	I	1	l	1

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	erodi-	erodi-		Slope gradient
and soil name		 Kw	Kf	 T	bility group	index		(EV)
	In						Ft	Pct
UdzA:		 			 			
Urban land.		 			 		l	
Auten	0-9	.20	.20	4	 5	56	300	1.0
	9-22	.32	.37					
	22-80	.05 	1.10	 	 			
UeaA:		į	į	į	İ	į		į
Urban land.		 		 	 			
Crosier	0-11	.37	.37	4	 5	56	200	2.0
	11-30		.37					
	30-38 38-80		.43	l I	 	 		1
				İ				İ
UeqA: Urban land.		 						
Orban land.		 	l I	 	 			1
Gilford			.15	4	3	86	200	1.0
	14-32 32-38		.10				l	1
	38-80		.02		 			
UewA: Urban land.		 	I I	 	 	 		1
		İ	İ					İ
Brems		.05	.05	5	2	134	300	1.0
	9-27 27-72	.05 .02	.05	l I	 	 	 	I I
	72-80		.02	İ				İ
Vanaga	0-9	 .05	.05	 5	 2	134	 300	1.0
Morocco	9-60	.02	.03	3	4 	134	300	1.0
	60-80		.02	İ	İ			į
UfbA:		 		 	 			
Urban land.					 			
Brookston	0-9 9-48	.24 .20	.24	5 	5 	56	250	1.0
	48-68		.32	İ				i
	68-80	.43	.49					
UfhA:		 		 	 			1
Urban land.		ĺ	į	ĺ	İ	į		į
Coloma	 0-12	 05	.05	 5	 1	250	 200	1.0
COTOMA	12-47		.15	3	<u> </u>	250	200	1.0
	47-80	.15	.15	į	İ			į
UfhB:		 		 	 		 	
Urban land.		İ	İ	İ	İ	İ	İ	İ
Coloma	0-12	 05	.05	 5	 1	250	 150	4.0
COTOMA	12-47		1.05	ن _ا	, <u>+</u>	430	1 130	4.0
	47-80		.15					ļ
UfhC:		 		 	 		 	1
Urban land.					İ			İ
						0.55		
G-1								
Coloma	0-12 12-47		.05	5 	1 	250	100 	7.0

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Ero	sion fa	ctors		Wind erodi-	length	Slope gradient
and soil name	 	 Kw	 Kf	 T	bility group	bility index	(rv)	(rv)
	In				 		Ft	Pct
UfmA:	 	 		 	 		 	
Urban land.		İ	į	İ		į		į
Coupee	 0-21	 .37	.37	 4	 5	56	 300	1.0
-	21-33	.32	.32	İ		į		į
	33-52	.10	.15	ĺ		İ		İ
	52-98	.02	.10					
UfrA:	 	 			 		 	
Urban land.				ĺ				
Del Rey	 0-9	 .43	.43	 4	 7	38	 150	1.0
-	9-33	.43	.43	İ		i	İ	i
	33-90	.43	.43	į		į		İ
UftA:	 	 		 	 		 	1
Urban land.		į	į	į	ĺ			į
Elston	 0-20	 .15	1.15	 4	 3	86	 300	1.0
	20-34	.15	.15	İ		i		i
	34-72	.10	.10	İ		į	İ	į
	72-80	.02	.10					
UfzA:		 		 	 		 	
Urban land.		į	į	į		į		İ
Mishawaka	 0-12	 .05	.05	 3	 3	86	 300	1.0
	12-18	.05	.05	İ				
	18-25	.05	.05	İ		į	İ	į
	25-58	.02	.02					
	58-80	.02	.02		 		 	
UgaA:	 	 			 		 	
Urban land.								
Morocco	 0-9	 .05	.05	 5	 2	134	 300	1.0
	9-60	.02	.02	İ	İ	İ	İ	i
	60-80	.02	.02					
UglA:	 	 		 	 		 	
Urban land.		į	į	į	İ	į		į
Osolo	 0-9	 .05	.05	 5	 2	134	 300	1.0
	9-25	.15	.15	İ	 			
	25-40	.02	.02	İ		į	İ	į
	40-80	.02	.02					
UgrA:	 	 		 	 		 	
Urban land.		į	į	į	İ	į	ĺ	į
Rensselaer	 0-15	.24	.24	 5	 5	56	 250	1.0
	15-38		.24	, J	, , 	50	250	1.0
	38-42		.20	İ		İ		İ
	42-76		.37	ĺ				İ
	76-80	.43	.49	I	I		l	I

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	Wind erodi-	Wind Wind Slope erodi- erodi- length shilty (rv) group index			
and soil name	i							(rv)	
	İ	Kw	Kf	Т	group	index		İ	
	In				ļ	Į.	Ft	Pct	
UgsA:	 			 	 		 		
Urban land.	 						 		
	i i		İ	İ	İ	İ	İ	İ	
Riddles	' '	.28	.28	5	3	86	200	1.0	
	8-13 13-33		32	l I	 	1	 	 	
	33-63		.43				 		
	63-90		.24	į	i	i	İ	į	
	90-100	.32	.37		[
Oshtemo		17	17	 4		06		1 1 0	
Osntemo	0-9 9-14	.17	.17 .17	4	3 	86	200 	1.0	
	14-35		.20	İ		1	! 		
	35-60	.17	.17	İ	į	į	İ	İ	
	60-80	.02	.10			1			
UgsB:							 		
Urban land.	 		 	l I	 		 		
	i i		i	İ		İ		İ	
Riddles	0-8	.28	.28	5	3	86	200	3.0	
	8-13		.32		!				
	13-33		.32				 		
	33-63 63-90		.43	l I	 		 	 	
	90-100		.37				 		
	i i		i	İ	į	i	İ	į	
Oshtemo	0-9	.17	.17	4	2	134	200	3.0	
	9-14		.17						
	14-35 35-60		.20 .17				 		
	60-80		.17	 	 		 	 	
				İ		İ		İ	
UgvA:									
Urban land.									
Tyner	 0-12	10	.10	 5	2	134	 300	1.0	
Tyner	12-20		.10	3	4	134	300	1.0	
	20-41		.05	İ	İ	i		İ	
	41-80	.02	.02		ĺ	İ			
UgvB: Urban land.	 						 		
orban land.	 		 	l I	 		 		
Tyner	0-12	.10	.10	5	2	134	200	3.0	
	12-20	.10	.10	į	İ	İ	İ	İ	
	20-41		.05		[
	41-80	.02	.02				 i		
UgvC:	 			 	I 	1	 	 	
Urban land.	i i				į	i		İ	
	ļ İ				[[l		
Tyner			.10	5	2	134	150	7.0	
	12-20 20-41		.10 .05	I I	 	1	 	1	
	20-41 41-80		.05		 		 		
					İ	i			
UgvD:	ı i					1			
Urban land.									
Trmor		10				134	100	14.0	
Tyner	0-12 12-20		1.10	5 	2	134	100 	14.0	
	12-20 20-41		.10				! 		
	41-80		.02	į	į	i	İ	į	
	ı		1	I	I		I	I	

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	 Depth	Ero	sion fa	ctors	erodi-	erodi-		Slope gradient
and soil name	 	 Kw	 Kf	 T	bility group	index	(rv) 	(rv)
-	In						Ft	Pct
		ļ		1				
UhmA: Urban land.					l i		 i	
Urban land.	 	l I	 	l l	 	 	 	
Hillsdale	0-8	.20	.20	5	3	86	200	1.0
		.17	.20					
	14-44	.20	.20					
	44-84	.28	.32	 	 		 	
UhmB: Urban land.		 			 			
Hillsdale	 0-8	.20	.20	 5	 3	86	 200	3.0
	'	.17	.20	i				
	14-44	.20	.20			İ		
	44-84	.28	.32					
UhoC: Urban land.	 	 	 	 	 		 	
Hillsdale	 0-8	.20	.20	 5	 3	86	 150	7.0
	8-14	.17	.20	İ		į		į
	14-44	.20	.20					
	44-84	.28	.32					
Oshtemo	 0-9	 .17	 .17	 4	 3	86	 150	7.0
	'	.20	.20	İ				
	14-35	.20	.20			İ		
		.17	.17					
	60-80	.02	1.10		 		 	
UhoD:	 	! 	İ		 		 	
Urban land.		ĺ	Ī			ĺ		
Hillsdale	 0-8			 5	 3	86	 150	14.0
milisdale	'	.20 .17	.20 .20	3	3 	00	130	14.0
	14-44	.20	.20	İ			! 	İ
	44-84	.28	.32	İ	İ	İ	İ	į
Oshtemo	0-9 9-14	.17 .20	1.17	4	3 	86	150	14.0
	'	.20	.20	 	 		 	
		.17	.17	İ		į		į
	60-80	.02	.10					
UhpC: Urban land.	 	 	 	 	 	 	 	
Hillsdale	 0-8	 .20	.20	 5	 3	86	 150	 7.0
	8-14		.20	İ		į		į
	14-44	'	.20					
	44-84	.28	.32				 	
Tracy	 0-5	 .24	.24	 5	 3	86	 200	 7.0
· · •	5-47		.20	İ	. <u>-</u>			į
	47-60	.10	.15					
	60-86	.10	.15					
		l						

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	Wind erodi-		Slope length	Slope gradient
and soil name					•	bility		(rv)
		Kw	Kf	Т	group	index		İ.
	In						Ft	Pct
UhpD:		 						
Urban land.		 		 				
Hillsdale	0-8	.20	.20	5	3	86	150	14.0
	8-14	.17	.20					
	14-44	.20	.20					
	44-84	.28	.32		 		İ	
Tracy	0-5	.24	.24	5	3	86	200	14.0
_	5-47	.17	.20	İ	İ	i		i
	47-60	.10	.15	İ	İ	į i		İ
	60-86	.10	.15					
JhwA:		 		 	 			
Urban land.		į	į	į	į	į		į
Martinsville	0-13	 .37	.37	 5	 5	56	200	1.0
	13-35	.28	.28	İ	İ			i
i	35-53	.28	.28	İ	İ	į i		i
	53-60	.37	.37	į	İ	į		į
UhwB:		 		 	 		 	1
Urban land.		 	į I	 	 			
Martinsville	0 - 5	.37	.37	5	5	56	200	3.0
	5-35	.28	.28					!
	35-53	.28	.28					
	53-60	.37 	.37	 	 			
UhwC: Urban land.		 	i i	 	 			i I
		ļ	İ	ĺ	İ	İ		İ
Martinsville	0-5	.37	.37	5	5	56	200	7.0
	5-35	.28	.28	 	 			
	35-53 53-60	.28 .37	.28	 	 			
		į	į	į	İ	į		İ
UkaA: Urban land.		 		 	 	 		1
		İ	į	İ	İ	į į		İ
Maumee	0-23	.05	.05	5	2	134	150	1.0
	23-61	.10	.10	!				!
	61-80	1.10	.10	 	 			1
UkeA:		İ	İ			İ		İ
Urban land.		 						
Milford	0-18	.28	.28	5	 6	48	300	1.0
i	18-50		.43	İ	İ	İ		İ
	50-60	.43	.43	ĺ				
JkxA:		 		 	 		 	
Urban land.		İ	İ	İ	İ	İ		İ
Ochtomo	0.0							
Oshtemo	0-9 9-14	.17	.17	4	3	86	200	1.0
	9-14		.20	I I	l I	 	 	I I
	35-60		1.20	I I	I I	 	! 	I
	60-80		1.10	İ	İ		' 	İ
		<u>-</u>	į	į	İ	į		į

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	 Depth	Ero	sion fa	ctors	Wind erodi-	Wind erodi-	Slope length	Slope gradien
and soil name	į i				bility	bility		(rv)
		Kw	Kf	T	group	index		<u> </u>
	In			 	 		Ft	Pct
UkxB:					 			
Urban land.	i i		İ	İ	İ	į i		İ
Oshtemo	0-9	.17	.17	4	3	86	200	3.0
	9-14 14-35	.20	.20	 	 			
	35-60		1.17	 	 			
	60-80		.10	İ		i		İ
	İ		ĺ	ĺ		İ		
UkxC:				ļ.				
Urban land.								
Oshtemo	 0-9	.17	1 .17	 4	 3	86	150	7.0
OBITOCINO	9-14	.20	.20	-	3		130	7.0
	14-35		.20	İ		i		İ
	35-60	.17	.17	ĺ		İ		
	60-80	.02	.10					
UmfB: Urban land.				 	 			
orban land.				 	 			
Riddles	0-8	.28	.28	5	5	56	200	3.0
	8-13	.32	.32	İ	İ	į i		į
	13-33	.32	.32					
	33-63		.43					
	63-90		.24					
	90-100	.32	.37	 	 			
Metea	0-9	.17	.17	4	2	134	200	3.0
	9-28	.15	.15	İ		i		İ
	28-32	.20	.20					
	32-44		.37					
	44-80	.37	.43					
UmfC:	 		l I	 	 	 		
Urban land.				İ				
	i i		i	İ	İ	į i		į
Riddles	0-5	.28	.28	5	5	56	200	7.0
	5-13		.32					
	13-33		.32		 			
	33-63 63-90		.43	l I	 			
	90-100		.37	 	 			
	i i		i	İ		i		į
Metea	0-7	.17	.17	4	2	134	200	7.0
	7-28		.15					
	28-32		.20					
	32-44 44-80		.37	 	 			
	11-00	,	. 25					
UmfD:	i i		į	į	i i	į		į
Urban land.								
				ļ.				
Riddles		.28	.28	5	5	56	150	14.0
	5-13 13-33		32	I I	 	 		I I
	13-33 33-63		.32	I I	 	 		1
	63-05 63-90		.24					
	90-100		.37	İ		į		į
	ı i							

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	 Depth	Ero	sion fa	ctors			Slope	Slope gradient
and soil name	Depth 					bility		(rv)
		Kw	Kf	T	group		(= - /	(= 1)
	In	1					Ft	Pct
UmfD: Metea	 0-7	 .17	.17	4	 2	134	 150	14.0
месеа	7-28		1.15	*	4	134	150	14.0
	28-32		.20	i		İ		İ
	32-44	.37	.37			İ		
	44-80	.37	.43					
UmpA:	 	l I			 	1	 	
Urban land.		i	i	i		i	! 	
	İ	İ	İ	İ	ĺ	İ	İ	İ
Schoolcraft	'		.28	4	5	56	165	1.0
	14-29		.28					
	29-39		.24				 	
	39-77 77-95		.05		 	1	 	I I
	77-33	.02	.02		 		 	
UmuA:	İ	İ	į	į i	İ	į	İ	į
Urban land.		1						
Courthough	 0-10		27	5		40		1 1 0
Southwest	10-10		.37	5	6 	48	200	1.0
	23-34		.28		 	1	 	
	34-45		.37	i	 	İ	! 	
	45-75		.28	i	İ	i	İ	İ
	75-80	.43	.43			İ		
UmwA:							 -	
Urban land.	 	l I	i		 		 	
	İ	i	i	i	İ	į	İ	į
Tracy	0-9	.24	.24	5	3	86	200	1.0
	'	.17	.20					
	'	.10	.15					
	60-86 	1.10	.15		 		 	
UmwB:	 	İ	i			İ	! 	
Urban land.	İ	į	į	į	İ	İ	İ	İ
		[!			[
Tracy		.24	.24	5	3	86	200	3.0
	9-47 47-60	1.17	.20				 	1
	60-86		.15	i	 		 	
		İ	i	i		İ		İ
UmwC:								
Urban land.			[
Tracy	 0-5	.24	.24	 5	 3	86	200	7.0
Tracy	5-47		.20	3	3	00	200	7.0
	47-60		.15	i		i	 	İ
	60-86	.10	.15	į	İ	İ	İ	İ
UmwD: Urban land.	 	 	1		 	1	 	1
ordan rand.	 	[
Tracy	0-9	.24	.24	5	3	86	200	14.0
	9-47	.17	.20					
	47-60		.15					
	60-86	.10	.15					
					l			

Table 17b.--Physical Properties of the Soils--Continued

Map symbol and soil name	 Depth	Ero	sion fa	ctors	•	Wind erodi- bility		Slope gradient (rv)
and poll name		Kw	Kf	 T	group	index	(14)	
	In						Ft	Pct
UmxA:		 					 	
UmxA: Urban land.	 	 		l l	 	 	 	1
	İ	İ	i	İ	İ	İ		İ
Troxel	0-50	.20	.20	5	6	48	200	1.0
	50-70 70-91	.37 .28	.37	l I	 	 	 	1
	70 31	.20	.20				 	
UnoA:		ĺ			ĺ			Ì
Urban land.								
Whitaker	 0-17	.28	.28	 5	 5	56	 200	1.0
	17-39	.32	.32					
	39-48	.28	.32					
	48-86	.32	.32					
UnqB:	 	 			 		 	
Urban land.	į		İ		İ	į		į
					-			
Williamstown	0-7 7-34	.37 .32	37	4	5	56	200	3.0
	34-39	.37	.43	l I	 		 	
	39-80	.37	.49	İ	İ	į		İ
	!				!			!
Crosier	0-11 11-30	.37 .32	37	4	5	56	200	3.0
	30-38	.37	.43	l I	 		 	
	38-80	.37	.43	i	İ	İ		İ
UntA: Urban land.	 	 			 		 	
								İ
Wunabuna, drained	•	.37	.37	5	6	48	200	1.0
	21-32 32-38	.32 .24	.32	l I	 	1	 	1
	38-80			İ		İ	! 	İ
	<u> </u>							ļ
Usl: Udorthents, rubbish.	 	l I			 		 	1
odorchencs, rubbish.		! 					 	
W:	İ	İ	İ	į	İ	İ	İ	İ
Water.								
WcnAI:	 	 		l l	 	 	 	1
Waterford	0-8	.32	.32	4	5	56	100	1.0
	8-41		.37					
	41-46		.05					
	46-50 50-80		.02	l I	 	 	 	1
				İ			 	İ
WoaA:	ļ	ļ			ļ		l	
Williamstown	•	.37	.37	4	5	56	200	1.0
	7-34 34-39		.32	I I	 	I I	 	1
	39-80		.49				 	
	l				l		l	
WoaB2:	 0	27	27	 4	 5		 200	3.0
Williamstown	0-5 5-34	.37	37	**	5 	56	∡00 	3.0
	34-39		.43	i		İ		İ
	39-80	.37	.49					

Table 17b.--Physical Properties of the Soils--Continued

Map symbol	Depth	Ero	sion fa	ctors	Wind erodi-	Wind erodi-		Slope gradient
and soil name		 Kw	 Kf	 T	bility group	bility index	(rv)	(rv)
	In	Į.		ļ	ļ	[Ft	Pct
WoaC2:		 	 		 			1
Williamstown	0-5	.37	.37	4	5	56	150	7.0
	5-34	.32	.32	i	i			i
	34-39	.37	.43	i	İ	i		i
	39-80	.37	.49	į	į	į		į
WobB:		 	 		 			1
Williamstown	0-7	.37	.37	4	5	56	200	3.0
	7-34	.32	.32	i -	İ			
	34-39	.37	.43	i	İ			İ
	39-80	.37	.49	İ	İ	i		İ
Crosier	0-11	 .37	.37	 4	 5	56	 200	3.0
CIOBICI	11-30	32	.37		1	30	1 200	3.0
	30-38	.37	.43	i	 			i
	38-80	.37	.43					İ
WrxAN:					 			
Wunabuna, drained	0-21	.37	.37	5	 6	48	200	1.0
Managana, aramea	21-32	32	.32	3	1	10	1 200	1.0
	32-38	.24	.24		i I			
	38-80							İ
WtbA:								
Whitaker	0-17	.28	.28	5	 5	56	200	1.0
WIII CAREL	17-39	.32	.32	5	5	50	200	1 1.0
	39-48	.28	.32	1	I I			1
	48-86	.32	.32					
WujB:		[
Williamstown	0-7	.37	.37	4	l 5	56	200	3.0
	7-34	32	.32		, J	55	200	3.0
	34-39	37	.43	i	l I			İ
	39-80	.37	.49					İ
Moon	0-9	 .17	 .17	 5	 2	134	200	3.0
	9-23	.15	1.15		. .	-51	200	
	23-35	.20	.20	i	İ			İ
	35-45	37	.37	i	l I			İ
	45-80	.37	.43		İ			İ
		<u> </u>						

Table 18.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated. Properties are listed as low, representative, and high values separated by a hyphen. Low and high values reflect the normally expected range. Representative values are indicative of conditions that occur most commonly.)

Map symbol	Depth	Cation-	Effective	Soil	Calcium
and soil name		exchange	cation-	reaction	carbonate
ĺ		capacity	exchange		equivalent
ĺ		į į	capacity		
	In	meq/100 g	meq/100 g	рн	Pct
ahAK:					
Abscota	0 - 5	3.0-9.0-15.0		6.1-6.7-7.3	0
I	5-14	4.0-6.0-8.0		6.1-7.0-7.8	0
	14-60	1.0-1.5-2.0		6.1-7.3-8.4	0
AatAN:					
Ackerman, drained	0 - 8	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
I	8-14	20.0-84.0-100.0		5.6-7.0-7.8	0-1-20
	14-80	2.0-3.5-5.0		6.6-7.5-8.4	0-20-40
AbhAN:					
Adrian, drained	0 - 9	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
j	9-34	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
į	34-80	1.0-2.0-3.0		6.1-7.0-8.4	0-20-40
AbhAU:					
Adrian, undrained	0-34	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
į	34-80	1.0-2.0-3.0		6.1-7.0-8.4	0-20-40
ApuAN:					
Antung, drained	0-9	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
į	9-12	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
į	12-80	1.0-2.0-3.0		5.6-7.0-8.4	0-20-40
AxvA:					
Auten	0 - 9	8.0-14.5-21.0		5.6-6.1-6.5	0
I	9-22	8.0-14.0-20.0		5.1-6.2-7.3	0
	22-80	1.0-2.5-4.0		5.6-6.5-7.4	0-2-5
BaaA:					
Bainter	0 - 9	4.0-8.0-12.0		5.6-6.5-7.3	0
I	9-13	4.0-7.5-11.0		5.1-6.2-7.3	0
I	13-31	4.0-5.0-11.0		5.1-6.2-7.3	0
I	31-44	4.0-6.0-20.0		5.1-6.5-7.8	0
	44-54	9.0-13.0-15.0		5.1-6.5-7.8	0
	54-80	1.0-2.0-3.0		7.4-7.9-8.4	0-15-30
BaaB:		i			
Bainter	0 - 9	4.0-8.0-12.0		5.6-6.5-7.3	0
I	9-13	4.0-7.5-11.0		5.1-6.2-7.3	0
	13-31	4.0-5.0-11.0		5.1-6.2-7.3	0
	31-44	4.0-6.0-20.0		5.1-6.5-7.8	0
	44-54			5.1-6.5-7.8	0
	54-80	1.0-2.0-3.0		7.4-7.9-8.4	0-15-30
BaaC2:		į į			
Bainter	0-5	4.0-8.0-12.0		5.6-6.5-7.3	0
	5-13			5.1-6.2-7.3	0
	13-31			5.1-6.2-7.3	0
	31-44			5.1-6.5-7.8	0
	44-54			5.1-6.5-7.8	0
	54-80	1.0-2.0-3.0		7.4-7.9-8.4	0-15-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
BbmA:		 	 		
Baugo	0-11	9.0-13.0-17.0		5.6-6.5-7.3	l 0
	11-29	12.0-16.0-20.0		5.6-6.5-7.3	0
j	29-36	4.0-13.0-22.0		5.6-6.5-7.3	0
	36-56	1.0-2.0-3.0		6.1-7.3-8.4	0-13-25
	56-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
BmgA:		 	 	 	
Blount	0-7	17.0-19.5-22.0	 	5.1-6.2-7.3	l 0
	7-23	21.0-25.5-30.0		4.5-5.5-6.5	0
	23-42	16.0-20.5-25.0		6.1-7.0-7.8	0-5-10
İ	42-80	16.0-20.5-25.0		7.4-7.9-8.4	5-18-30
		1			
BshA: Brady	0-9	 5.0-12.5-20.0	 	5.1-6.2-7.3	 0
1	9-37	2.0-7.0-12.0		5.1-5.8-6.5	0
	37-56	2.0-7.0-12.0		5.1-6.2-7.3	0
İ	56-80	1.0-1.5-2.0		6.6-7.5-8.4	10-18-25
Brems	0-9	3.0-4.0-5.0	 	5.1-6.2-7.3	 0
DI emp	9-27	3.0-4.0-5.0	l	5.1-6.2-7.3	0
	27-72	1.0-2.0-5.0	1.0-2.0-3.0	4.5-5.3-6.0	0
İ	72-80	1.0-2.0-3.0		5.1-5.8-6.5	0
Morocco	0-9	3.0-4.0-5.0	 	4.5-5.9-7.3	 0
MOIOCCO	9-60	1.0-2.0-5.0	1.0-3.5-6.0	4.5-5.3-6.0	0 0
	60-80	1.0-2.0-3.0	1.0-3.5-6.0	4.5-5.3-6.0	0
BteA: Brems	0-9	3.0-4.0-5.0	 	5.1-6.2-7.3	 0
	9-27	3.0-4.0-5.0		5.1-6.2-7.3	0
	27-72	1.0-2.0-5.0	1.0-2.0-3.0	4.5-5.3-6.0	0
	72-80	1.0-2.0-3.0		5.1-5.8-6.5	0
BuuA:		l I	 	 	
Brookston	0-9	20.0-22.0-24.0	 	6.1-6.7-7.3	l 0
	9-48	8.0-20.0-25.0		6.1-7.0-7.8	0
	48-68	3.0-9.5-16.0	i	6.1-7.3-8.4	0-8-15
İ	68-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
CmbAI:		 			
Cohoctah	0-13	10.0-17.0-24.0		6.1-7.0-7.8	 0-1-15
	13-56	•		6.1-7.3-8.4	0-5-20
İ	56-80	1.0-4.0-7.0		7.4-7.9-8.4	15-27-40
CnbA: Coloma	0-12	1.0-6.5-12.0	 	4.5-5.9-7.3	 0
00101110	12-47			4.5-5.9-7.3	l 0
	47-80	'		4.5-5.9-7.3	0
nbB: Coloma	0-12	1.0-6.5-12.0	 	4.5-5.9-7.3	 0
0010ma	12-47		 	4.5-5.9-7.3	0 0
	47-80	'		4.5-5.9-7.3	0
İ		!	!	ļ.	
Coloma	0.10	1065120		4 5 5 0 7 3	
Coloma	0-12 12-47		 	4.5-5.9-7.3	0 0
	47-80	•	 	4.5-5.9-7.3	0 0
	_, 50		1		,

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonat equivalen
	In	meq/100 g	meq/100 g	рН	Pct
		ļ ļ			
hbD: Coloma	0-12	1.0-6.5-12.0		4.5-5.9-7.3	 0
COTOMa	12-47	0.1-4.6-9.0		4.5-5.9-7.3	0 0
	47-80	0.4-5.7-11.0		4.5-5.9-7.3	0
1					l
rrA:					
Coupee	0-21 21-33	10.0-12.5-15.0 9.0-16.0-23.0		5.1-7.0-7.3	0 0
	33-52	2.0-3.0-5.0	1.0-4.0-7.0	4.5-5.3-6.0	0 0
	52-98	1.0-2.0-3.0	1.0-2.5-4.0	4.5-5.3-6.0	0
İ		İ		ĺ	ĺ
vdA:					
Crosier	0-11	7.0-12.0-17.0		5.6-6.5-7.3	0
	11-30 30-38	8.0-14.0-20.0 3.0-9.5-16.0		5.1-6.2-7.3	0 0-8-15
	38-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
İ		į		İ	İ
vdB:					l
Crosier	0-11	7.0-12.0-17.0		5.6-6.5-7.3	0
	11-30	8.0-14.0-20.0		5.1-6.2-7.3	0
	30-38 38-80	3.0-9.5-16.0		6.1-7.3-8.4 7.4-7.9-8.4	0-8-15 15-25-35
	30-00	2.0-5.5-9.0		7.4-7.9-6.4	15-25-35
wkA:		i			
Crumstown	0 - 9	4.0-9.0-14.0		5.1-6.5-7.3	0
	9-19	4.0-7.0-14.0		5.1-6.2-7.3	0
	19-45	2.0-4.0-8.0		5.6-6.1-6.5	0
	45-100	1.0-2.0-5.0		5.6-5.6-7.3	0
wkB:					!
Crumstown	0-9	4.0-9.0-14.0		5.1-6.5-7.3	0
	9-19	4.0-7.0-14.0		5.1-6.2-7.3	0
	19-45	2.0-4.0-8.0		5.6-6.1-6.5	0
	45-100	1.0-2.0-5.0		5.6-5.6-7.3	0
crA:				 	
Del Rey	0-9	17.0-19.0-21.0		5.6-6.5-7.3	0
j	9-33	18.0-21.0-24.0		4.5-5.9-7.3	0-5-10
	33-90	12.0-15.0-18.0		7.9-8.2-8.4	5-23-40
chan:					
Edwards, drained	0-9	 125.0-185.0-230.0		6.6-7.0-7.3	 0-0-10
		125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
İ		1.0-8.0-10.0		7.8-8.1-8.4	50-70-90
		ļ ļ			
chAU:	0.24	125 0 105 0 220 0			 0-0-10
Edwards, undrained		1.0-8.0-10.0		5.1-6.5-7.3 7.8-8.1-8.4	0-0-10 50-70-90
	24-80	1.0-8.0-10.0		7.0-0.1-0.4	30-70-30
crAN:		i		İ	İ
Edselton, drained	0-10	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
	10-21	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
		1.0-8.0-10.0		7.8-8.1-8.4	50-70-90
	48-80	1.0-4.0-7.0		7.8-8.1-8.4	0-20-40
crAU:				 	
Edselton, undrained	0-21	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	21-48			7.8-8.1-8.4	50-70-90
	21 10	1.0 0.0 10.0			

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
EmeA:					
Elston	0-20	5.0-12.0-19.0		5.1-6.2-7.3	0 0
	34-72	3.0-4.0-8.0		5.1-5.6-6.5	0 0
	72-80	1.0-2.5-4.0		6.6-7.9-8.4	0-30-40
	İ	i i		İ	İ
czA:		İ			ĺ
Gilford	0-14	6.0-13.0-20.0		5.6-6.5-7.3	0
	14-32	4.0-9.0-14.0		5.6-6.5-7.3	0
	32-38	1.0-5.0-9.0		6.1-6.7-7.3	0
	38-80	1.0-3.5-6.0		6.6-7.5-8.4	0-15-30
dnA:	 				
Gilford	0-14	6.0-13.0-20.0		5.6-6.5-7.3	0
	14-32	4.0-9.0-14.0		5.6-6.5-7.3	0
	32-38	1.0-5.0-9.0		6.1-6.7-7.3	0
	38-80	1.0-3.5-6.0		6.6-7.5-8.4	0-15-30
Ifban:					
Henrietta, drained	0-12	1.0-5.5-10.0		6.6-7.0-7.3	0-0-10 0
	43-60	1.0-5.5-10.0		7.9-8.2-8.4	10-20-30
	43-00	1.0-3.3-10.0		7.5-0.2-0.4	10-20-30
HfbAU:	' 	i i			
Henrietta, undrained-	0-12	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	12-43	1.0-5.5-10.0		5.6-6.7-7.8	0
	43-80	1.0-5.5-10.0		7.9-8.2-8.4	10-20-30
IkkA:					
Hillsdale	0-8 8-14	4.0-8.0-12.0		5.6-6.5-7.3	0 0
	14-44	5.0-7.0-13.0		4.5-5.5-6.5	l 0
	44-84	3.0-7.0-11.0		5.1-5.8-7.3	l 0
HkkB:		i i		İ	İ
Hillsdale	0-8	4.0-8.0-12.0		5.6-6.5-7.3	0
	8-14	4.0-7.5-11.0		5.1-6.2-7.3	0
	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
HknC2:	 			1	
Hillsdale	 0-5	4.0-8.0-12.0		5.6-6.5-7.3	l l 0
HILLDUCK	5-14			5.1-6.2-7.3	0
	14-44			4.5-5.5-6.5	0
	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
		İ			
Oshtemo	0-6	4.0-9.0-12.0		5.6-6.5-7.3	0
	6-14			5.1-6.2-7.3	0
	14-35			5.1-6.2-7.3	0
	35-60			5.6-6.5-7.3	0
	60-80 	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
IknD2:	 			1	I I
Hillsdale	 0-5	4.0-8.0-12.0		5.6-6.5-7.3	l 0
				5.1-6.2-7.3	0
	5-14	4.0-7.5-11.0		5.1-0.2-7.3	0
	5-14 14-44			4.5-5.5-6.5	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name 	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
HknD2:					
Oshtemo	0-6	4.0-9.0-12.0		5.6-6.5-7.3	0
	6-14	5.0-9.0-15.0		5.1-6.2-7.3	0
l I	14-35 35-60	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60 60-80	2.0-5.5-9.0		5.6-6.5-7.3	0 20-30-40
 	60-60	1.0-3.0-5.0		7.4-7.9-6.4	20-30-40
HkpC2:				 	!
Hillsdale	0-5	4.0-8.0-12.0		5.6-6.5-7.3	0
i	5-14	4.0-7.5-11.0		5.1-6.2-7.3	0
i	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
j	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
ĺ		İ			
Tracy	0 - 5	4.0-5.0-8.0	5.0-9.5-14.0	4.5-5.0-5.5	0
I	5-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
I	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
HkpD2:					
Hillsdale	0-5	4.0-8.0-12.0		5.6-6.5-7.3	0
	5-14	4.0-7.5-11.0		5.1-6.2-7.3	0
	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
m	0-5	4.0-5.0-8.0	5.0-9.5-14.0	 4.5-5.0-5.5	l l 0
Tracy	5-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0 0
ļ	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
I	60-86	1.0-3.5-6.0		5.6-5.8-6.0	l 0
HtbAN:		i i		İ	İ
Houghton, drained	0 - 9	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
ĺ	9-80	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
HtbAU:					
Houghton, undrained	0-80	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
JaaAK:					
Jamestown	0-11	12.0-19.5-27.0		6.1-6.7-7.3	0
ļ	11-33	8.0-16.5-25.0		6.1-6.7-7.3	0
l I	33-44	5.0-10.0-15.0		6.1-7.0-7.8	0
l I	44-52 52-80	2.0-4.0-6.0		6.1-7.0-7.8 7.4-7.9-8.4	0-3-5 15-25-35
	32-80	2.0-5.5-5.0		7.4-7.9-6.4	15-25-35
MfaA:				 	!
Martinsville	0-13	8.0-12.0-16.0		5.1-6.2-7.3	l 0
	13-35			5.1-5.8-6.5	. 0
i	35-53	7.0-12.0-17.0		5.1-5.8-7.3	0
į	53-60	1.0-7.0-13.0		7.4-7.4-8.4	15-23-45
ĺ		İ			
MfaB2:		İ			
Martinsville	0 - 5	8.0-12.0-16.0		5.1-6.2-7.3	0
	5-35	9.0-15.5-22.0		5.1-5.8-6.5	0
I	35-53	7.0-12.0-17.0		5.1-5.8-7.3	0
	53-60	1.0-7.0-13.0		7.4-7.4-8.4	15-23-45
MfaC2:				[
Martinsville		8.0-12.0-16.0		5.1-6.2-7.3	0
	5-35			5.1-5.8-6.5	0
	35-53	:		5.1-5.8-7.3	0
	53-60	1.0-7.0-13.0		7.4-7.4-8.4	15-23-45

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
_					
MfrAN: Madaus, drained	 0-9			6.6-7.0-7.3	0-0-10
Madaus, drained	9-48	1.0-8.0-10.0		7.8-8.1-8.4	50-70-90
	48-80	1.0-2.0-3.0		7.4-7.9-8.4	0-20-40
	l				
MfrAU: Madaus, undrained	 0-9			5.1-6.5-7.3	 0-0-10
madab, andramed	9-48	1.0-8.0-10.0		7.8-8.1-8.4	50-70-90
	48-80	1.0-2.0-3.0		7.4-7.9-8.4	0-20-40
	İ	i i		İ	İ
igcA:					
Maumee	0-23	8.0-9.0-10.0		5.6-6.7-7.8	0
	23-61	1.0-4.5-8.0		5.6-6.5-7.3	0 0-20-40
	01-00	1.0-2.0-3.0		0.1-7.5-0.4	0-20-40
MgdAN:		i i		İ	İ
Martisco, drained	'	125.0-185.0-230.0		6.6-7.0-7.3	0-0-10
	12-80	1.0-8.0-10.0		7.8-8.1-8.4	50-70-90
fhaA:	 				
Maumee	0-23	5.0-9.5-14.0		5.6-6.7-7.8	i I 0
	23-61	1.0-4.5-8.0		5.6-6.5-7.3	0
į	61-80	1.0-2.0-3.0		6.1-7.3-8.4	0-20-40
MhbA:	 0-23	5.0-9.5-14.0		5.6-6.7-7.8	 0
radinec	23-61	1.0-4.5-8.0		5.6-6.5-7.3	1 0
	61-80	1.0-2.0-3.0		6.1-7.3-8.4	0-20-40
fmbC2: Miami	 0-5	7.0-12.0-17.0		5.6-6.5-7.3	 0
ri dili	5-31	9.0-16.0-23.0		5.1-5.6-6.5	i 0
	31-36	4.0-7.5-11.0		6.6-7.2-7.8	0-10-20
	36-80	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
MmdC3:	 0-4	10.0-15.5-21.0		5.6-6.5-7.3	 0
MIGHT	4-31	9.0-16.0-23.0		5.1-5.6-6.5	l 0
	31-36	4.0-7.5-11.0		6.6-7.2-7.8	0-10-20
	36-80	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
		<u> </u>			!
fmdD3:		100155210			
Miami	0-4 4-31	10.0-15.5-21.0		5.6-6.5-7.3	0 0
	31-36			6.6-7.2-7.8	0-10-20
	36-80	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
	İ	i i		İ	İ
fouA:					
Milford	0-18			5.6-6.5-7.3	0
	18-50 50-60	22.0-25.5-29.0 4.0-11.0-18.0		6.6-7.5-8.4	0-7-15
					25 50
IsaA:	l	į į		[
Mishawaka		10.0-13.0-16.0		5.1-6.5-7.3	0
	12-18			5.1-5.6-6.0	0
	18-25			5.1-5.6-6.0	0
	25-58 58-80			5.1-5.6-6.0	0 0
	20-00	1.0-2.0-3.0		1 2.1-2.0-0.0	1 0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
		į į			<u> </u>
tsB2:	 0-5	12.0-17.0-22.0		 5.1-6.2-7.3	 0
Morley	0-5 5-20	13.0-22.5-32.0		5.6-6.7-7.3	l 0
	20-29	12.0-19.0-26.0		5.6-7.3-7.8	0-5-30
	29-80	12.0-17.5-23.0		6.1-7.8-8.4	20-45-70
1		1			
tsC2:					
Morley	0-5	12.0-17.0-22.0		5.1-6.2-7.3	0
	5-20	13.0-22.5-32.0		5.6-6.7-7.3	0
	20-29	12.0-19.0-26.0 12.0-17.5-23.0		5.6-7.3-7.8	0-5-30
	23-80	12.0-17.5-25.0		0.1-7.0-0.4	20-45-70
ubD3:		i i			İ
Morley	0-4	13.0-22.5-32.0		5.6-6.7-7.3	0
	4-20	13.0-22.5-32.0		5.6-6.7-7.3	0
	20-29	12.0-19.0-26.0		5.6-7.3-7.8	0-5-30
	29-80	12.0-17.5-23.0		6.1-7.8-8.4	20-45-70
rh AN •		 		l I	l I
<pre>fvhAN: Moston, drained</pre>	0-8	125.0-185.0-230.0		 6.6-7.0-7.3	0-0-10
		125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	24-48	20.0-84.0-100.0		5.6-7.0-7.8	0-1-20
	48-80	1.0-2.0-3.0		6.6-7.5-8.4	0-20-40
j		i i		İ	İ
vhAU:		<u> </u>		<u> </u>	!
Moston, undrained		125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	24-48	20.0-84.0-100.0		5.6-7.0-7.8	0-1-20
	48-80	1.0-2.0-3.0		6.6-7.5-8.4	0-20-40
vkA:		i			i I
Morocco	0-9	3.0-4.0-5.0		4.5-5.9-7.3	0
	9-60	1.0-2.0-5.0	1.0-3.5-6.0	4.5-5.3-6.0	0
	60-80	1.0-2.0-3.0	1.0-3.5-6.0	4.5-5.3-6.0	0
wzAN:				 	
wzan: Muskego, drained	 0-9	125.0-185.0-230.0		 6.6-7.0-7.3	0-0-10
inabilogo, alalinoa		125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	27-80	20.0-84.0-100.0		5.6-7.0-7.8	0-1-20
1		1			
wzAU:		[[!
Muskego, undrained		125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
	27-80	20.0-84.0-100.0		5.6-7.0-7.8	0-1-20
krA:		 		 	
Oshtemo	0-9	4.0-9.0-14.0		5.1-6.5-7.3	0
	9-14	4.0-9.0-14.0		5.1-6.5-7.3	0
j	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
less D -					
krB: Oshtemo	 0-9	4.0-9.0-14.0		 5.1-6.5-7.3	 0
	0-9 9-14	4.0-9.0-14.0		5.1-6.5-7.3	l 0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	l 0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	l 0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
				,	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рн	Pct
krC2:					
Oshtemo	0-6	4.0-9.0-14.0		5.1-6.5-7.3	0
į	6-14	4.0-9.0-14.0		5.1-6.5-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
krD:					
Oshtemo	0-9	4.0-9.0-14.0		5.1-6.5-7.3	0
į	9-14	4.0-9.0-14.0		5.1-6.5-7.3	0
j	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
lcA:					
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	 0
	9-14	5.0-9.0-15.0		5.1-6.2-7.3	0
İ	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
İ	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
lcB: Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	 0
	9-14	5.0-9.0-15.0		5.1-6.2-7.3	l 0
ļ	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
İ	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
		<u> </u>			
1cC2:	0-6	4.0-9.0-12.0		5.6-6.5-7.3	 0
Oshtemo	6-14	5.0-9.0-15.0		5.1-6.2-7.3	0 0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	l 0
,	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
İ	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
lcD:					
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	0
	9-14 14-35	5.0-9.0-15.0		5.1-6.2-7.3	0 0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0 0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
İ		i i			İ
mgA:					
Osolo	0 - 9	2.0-3.5-5.0		5.1-6.2-7.3	0
	9-25	1.0-2.0-3.0		5.1-6.2-7.3	0
	25-40 40-80	1.0-2.0-3.0		5.1-6.2-7.3	0 0
	40-00	1.0-2.0-3.0		5.1-6.2-7.3	
aaAN:					
Palms, drained	0-35	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
ĺ	35-80	2.0-8.5-15.0		6.1-7.3-8.4	0-15-30
aaAU: Palms, undrained	0.35	1125 0 105 0 220 0			
raims, undrained	0-35 35-80			5.1-6.5-7.3	0-0-10 0-15-30
l İ	33-60	2.0-0.5-15.0		0.1-7.3-0.4	0-13-30
mg:		į į		İ	I
Pits, gravel.		i i		İ	l
İ		i i			l
xlA:					
Psammaquents.					

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рн	Pct
exo: Psamments.	 		 	 	
QuiA:				 	
Quinn	0 - 7	8.0-14.5-21.0		4.5-6.1-6.5	0
	7-47	3.0-5.0-10.0	3.0-7.0-11.0	4.5-5.0-5.5	0
	47-80	1.0-3.5-6.0		6.1-6.7-6.8	0
ujA:	i				
Quinn	0-7	10.0-13.0-16.0		4.5-6.5-7.3	0
	7-47	3.0-5.0-10.0	3.0-7.0-11.0	4.5-5.0-5.5	0
	47-80	1.0-3.5-6.0		6.1-6.7-6.8	0
RenA:					!
Rensselaer	0-15	11.0-19.5-28.0		6.1-6.7-7.3	0
	15-38	10.0-18.5-27.0		6.1-6.7-7.3	0
	38-42 42-76	9.0-14.5-20.0 4.0-9.0-14.0		6.6-7.2-7.8 7.4-7.9-8.4	0-10-20
	76-80	2.0-5.5-9.0		7.4-7.9-8.4	15-26-40
ReyA:	ĺ		İ	ĺ	ĺ
Rensselaer	0-15	11.0-19.5-28.0		6.1-6.7-7.3	0
	15-38 38-42	10.0-18.5-27.0 9.0-14.5-20.0		6.1-6.7-7.3 6.6-7.2-7.8	0 0-10-20
	42-76	4.0-9.0-14.0		7.4-7.9-8.4	15-28-40
	76-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
j	į		İ	İ	İ
RopA:					
Riddles	0-8	3.0-8.0-13.0		5.6-6.5-7.3	0 0
	8-13 13-33	7.0-13.5-20.0 6.0-12.0-18.0		4.5-5.9-7.3 6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
j	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Oakhama		4 0 0 0 14 0		 5.1-6.5-7.3	 0
Oshtemo	0-9 9-14	4.0-9.0-14.0 4.0-9.0-14.0		5.1-6.5-7.3	0 0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
j	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
				1	
RopB: Riddles	0-8	3.0-8.0-13.0		 5.6-6.5-7.3	 0
	8-13	7.0-13.5-20.0		4.5-5.9-7.3	0
j	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Oshtemo	0-9	4.0-9.0-14.0		5.1-6.5-7.3	0
j	9-14	4.0-9.0-14.0		5.1-6.5-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
RopC2:				! 	!
Riddles	0-5	3.0-8.0-13.0		5.6-6.5-7.3	0
İ	5-13	7.0-13.5-20.0		4.5-5.9-7.3	0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90 90-100	2.0-6.5-11.0 5.0-9.5-14.0		5.1-6.2-7.3	0 15-28-40
	20-100	J.U-J.J-14.U		1.1-1.3-0.4	13-20-40

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
opC2:					
Oshtemo	0-6	4.0-9.0-14.0		5.1-6.5-7.3	l 0
	6-14	4.0-9.0-14.0		5.1-6.5-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
70					
opD2: Riddles	0-5	3.0-8.0-13.0		5.6-6.5-7.3	l 0
Kiddleg	5-13	7.0-13.5-20.0		4.5-5.9-7.3	0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Oakhama	0-6	4.0-9.0-14.0		5.1-6.5-7.3	 0
Oshtemo	6-14	4.0-9.0-14.0		5.1-6.5-7.3	0 0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	l 0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
İ	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
oqB:					
Riddles	0-8	3.0-8.0-13.0		5.6-6.5-7.3	0
	8-13 13-33	7.0-13.5-20.0 6.0-12.0-18.0		4.5-5.9-7.3	0 0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
İ	ĺ	Ì			ĺ
Metea	0-9	2.0-5.5-9.0		5.6-6.5-7.3	0
	9-28	1.0-4.0-7.0		5.1-5.8-6.5	0
	28-32 32-44	6.0-10.0-15.0 11.0-15.0-23.0		5.6-6.1-6.5	0 0
	44-80	5.0-9.5-14.0		5.6-7.0-8.4	0-20-40
		111 111 2111			
oqC2:	j	i		İ	İ
Riddles	0-5	3.0-8.0-13.0		5.6-6.5-7.3	0
	5-13	7.0-13.5-20.0		4.5-5.9-7.3	0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63 63-90	4.0-9.0-14.0 2.0-6.5-11.0		7.4-7.9-8.4	15-25-35 0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
	30 100	3.0 3.3 11.0		/.1 /.5 0.1	13 20 10
Metea	0-7	2.0-5.5-9.0		5.6-6.5-7.3	0
j	7-28	1.0-4.0-7.0		5.1-5.8-6.5	0
	28-32	6.0-10.0-15.0		5.6-6.1-6.5	0
	32-44	11.0-15.0-23.0		5.6-6.5-7.3	0
	44-80	5.0-9.5-14.0		5.6-7.0-8.4	0-20-40
oqD2:	I			1	
oquz: Riddles	0-5	3.0-8.0-13.0		5.6-6.5-7.3	l 0
	5-13	7.0-13.5-20.0		4.5-5.9-7.3	0
j	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
ĺ	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Metea	0.7	205500			 0
mecea	0-7 7-28	2.0-5.5-9.0 1.0-4.0-7.0		5.6-6.5-7.3	0 0
	28-32	6.0-10.0-15.0		5.6-6.1-6.5	0 0
	32-44	11.0-15.0-23.0		5.6-6.5-7.3	l 0
	J2-44	11.0-13.0-23.0		3.0-0.3-7.3	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
			!		<u> </u>
SdzA:	0 11				
Selfridge	0-11	5.0-10.0-15.0		5.6-6.5-7.3	0 0
	11-25 25-29	1.0-5.5-10.0		5.1-6.2-7.3	0
	29-32	1.0-8.0-23.0		5.6-6.5-7.3	l 0
	32-80	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
	32-00 	3.0-3.3-14.0	1	7.4-7.5-0.4	15-20-40
Crosier	0-11	7.0-12.0-17.0		5.6-6.5-7.3	i I 0
	11-30	8.0-14.0-20.0		5.1-6.2-7.3	i 0
	30-38	3.0-9.5-16.0		6.1-7.3-8.4	0-8-15
	38-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
	İ	İ	i	İ	İ
SdzaB:	İ	İ	İ	İ	İ
Selfridge	0-11	5.0-10.0-15.0		5.6-6.5-7.3	0
	11-25	1.0-5.5-10.0		5.1-6.2-7.3	0
	25-29	1.0-8.0-23.0		5.6-6.5-7.3	0
	29-32	7.0-15.0-23.0		5.6-6.5-7.3	0
	32-80	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Brems	0-9	3.0-4.0-5.0		5.1-6.2-7.3	0
	9-27	3.0-4.0-5.0		5.1-6.2-7.3	0
	27-72	1.0-2.0-5.0	1.0-2.0-3.0	4.5-5.3-6.0	0
	72-80	1.0-2.0-3.0		5.1-5.8-6.5	0
SesA:					
Schoolcraft	0-14	5.0-10.0-15.0		5.1-6.5-7.3	0
	14-29	3.0-20.0-25.0		4.5-5.5-7.3	0
	29-39	4.0-15.0-17.0		4.5-5.8-6.5	0
	39-77 77-95	1.0-3.5-6.0		4.5-5.9-7.3 6.6-7.9-8.4	0 0-15-30
	77-33 	1.0-2.0-3.0	1	0.0-7.5-0.4	0-15-50
SnlA:	! 	 	i	 	İ
Southwest	0-10	10.0-20.0-30.0		6.1-6.7-7.3	0
	10-23	10.0-20.0-30.0	i	6.1-6.7-7.3	0
	23-34	20.0-28.0-36.0	i	6.1-6.7-7.3	0
	34-45	10.0-15.0-20.0	i	6.1-6.7-7.3	0
	45-75	10.0-21.5-33.0	i	6.1-6.7-7.8	0-7-15
	75-80	2.0-8.5-15.0	i	7.4-7.9-8.4	5-15-25
TmpA:					
Tracy	0-9	4.0-5.0-8.0	5.0-9.5-14.0	4.5-5.0-5.5	0
	9-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
					0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	
	60-86 	1.0-3.5-6.0		5.6-5.8-6.0	
_	 	 	 	 	
TmpB: Tracy	 0-9	 4.0-5.0-8.0	 5.0-9.5-14.0	 4.5-5.0-5.5	0
_	 0-9 9-47	4.0-5.0-8.0 4.0-7.0-9.0	 5.0-9.5-14.0 4.0-8.5-13.0	 4.5-5.0-5.5 4.5-4.8-5.0	 0 0
_	 0-9 9-47 47-60	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0		 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0	0 0
_	 0-9 9-47	4.0-5.0-8.0 4.0-7.0-9.0	 5.0-9.5-14.0 4.0-8.5-13.0	 4.5-5.0-5.5 4.5-4.8-5.0	 0 0
Tracy	 0-9 9-47 47-60	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0		 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0	0 0
TracyTracy	 0-9 9-47 47-60 60-86	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0	 0 0 0 0
Tracy	0-9 9-47 47-60 60-86	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5	0 0 0
Tracy	0-9 9-47 47-60 60-86 0-5 5-47	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0	
TracyTracy	0-9 9-47 47-60 60-86	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5	0 0 0
TracyTmpC2:	0-9 9-47 47-60 60-86 0-5 5-47 47-60	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0	5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0 5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0	4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0	
Tracy TmpC2: Tracy	0-9 9-47 47-60 60-86 0-5 5-47 47-60	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0	5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0 5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0	4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0	
Tracy TmpC2: Tracy	0-9 9-47 47-60 60-86 0-5 5-47 47-60	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0	5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0 5.0-9.5-14.0 4.0-8.5-13.0 2.0-9.0-16.0	4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0	
Tracy TmpC2: Tracy TmpD:	0-9 9-47 47-60 60-86	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0	
TmpC2: Tracy TmpD:	0-9 9-47 47-60 60-86 0-5 5-47 47-60 60-86	4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0 4.0-5.0-8.0 4.0-7.0-9.0 3.0-10.0-12.0 1.0-3.5-6.0		4.5-5.0-5.5 4.5-4.8-5.0 4.5-4.8-5.0 5.6-5.8-6.0 4.5-5.0-5.5 4.5-4.8-5.0 5.6-5.8-6.0	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalen
	In	meq/100 g	meq/100 g	рн	Pct
InwA: Troxel	0-50	 14.0-20.0-26.0		5.6-6.1-6.5	0
	50-70	11.0-18.0-25.0		5.6-6.1-6.5	0
İ	70-91	5.0-9.0-13.0		5.6-6.7-7.8	0
xuA: Tyner	0-12	 3.0-4.0-5.0		4.5-5.9-7.3	0
Tyner	12-20	2.0-4.0-6.0		4.5-5.9-7.3	0
	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
İ	41-80	1.0-2.0-3.0		4.5-5.9-7.3	0
xuB:	0-12	 3.0-4.0-5.0		4.5-5.9-7.3	0
Tyner	12-20	2.0-4.0-6.0		4.5-5.9-7.3	0
	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
	41-80	1.0-2.0-3.0		4.5-5.9-7.3	0
İ		İ			
xuC:	0.10				
Tyner	0-12 12-20	3.0-4.0-5.0 2.0-4.0-6.0		4.5-5.9-7.3	0
	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
	41-80	1.0-2.0-3.0		4.5-5.9-7.3	0
İ		į		į į	
xuD:					
Tyner	0-12	3.0-4.0-5.0		4.5-5.9-7.3	0
ļ i	12-20 20-41	2.0-4.0-6.0 1.0-3.5-6.0		4.5-5.9-7.3	0
ļ	41-80	1.0-3.3-8.0		4.5-5.9-7.3	0
į		į į		į i	
xuF:					
Tyner	0-12	3.0-4.0-5.0		4.5-5.9-7.3	0
	12-20 20-41	2.0-4.0-6.0 1.0-3.5-6.0		4.5-5.9-7.3	0
	41-80	1.0-3.3-0.0		4.5-5.9-7.3	0
İ		į į		į į	
am:					
Udorthents, loamy.		 			
deA:		' 			
Urban land.					
 Bainter	0-9				0
Bainter	9-13	4.0-8.0-12.0 4.0-7.5-11.0		5.6-6.5-7.3	0
	13-31			5.1-6.2-7.3	0
	31-44	'		5.1-6.5-7.8	0
	44-54	'		5.1-6.5-7.8	0
j	54-80	'		7.4-7.9-8.4	0-15-30
, _					
deB: Urban land.		 			
					_
Bainter		'		5.6-6.5-7.3	0
	9-13			5.1-6.2-7.3	0
	13-31	'		5.1-6.2-7.3	0
	31-44 44-54	'		5.1-6.5-7.8	0
	54-80	'		7.4-7.9-8.4	0-15-30
	31-00	1.0 2.0-3.0		,.1 ,.5-0.4	0-13-30

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
-1.4					
JdeC: Urban land.			 	 	
ordan rand.			 	 	
Bainter	0-5	4.0-8.0-12.0		5.6-6.5-7.3	0
j	5-13	4.0-7.5-11.0		5.1-6.2-7.3	0
	13-31	4.0-5.0-11.0		5.1-6.2-7.3	0
	31-44	4.0-6.0-20.0		5.1-6.5-7.8	0
	44-54	9.0-13.0-15.0		5.1-6.5-7.8	0
	54-80	1.0-2.0-3.0		7.4-7.9-8.4	0-15-30
JdkA:			 	 	l I
Urban land.			 	 	
Brady	0 - 9	5.0-12.5-20.0		5.1-6.2-7.3	0
İ	9-37	2.0-7.0-12.0		5.1-5.8-6.5	0
	37-56	2.0-7.0-12.0		5.1-6.2-7.3	0
	56-80	1.0-1.5-2.0		6.6-7.5-8.4	10-18-25
JdzA: Urban land.			 	 	
ordan rand.			 	 	
Auten	0-9	8.0-14.5-21.0	 	5.6-6.1-6.5	l 0
	9-22	8.0-14.0-20.0		5.1-6.2-7.3	0
j	22-80	1.0-2.5-4.0		5.6-6.5-7.4	0-2-5
JeaA:					
Urban land.					
- '	0 44				
Crosier	0-11 11-30	7.0-12.0-17.0 8.0-14.0-20.0	 	5.6-6.5-7.3	0 0
	30-38	3.0-9.5-16.0	 	6.1-7.3-8.4	0-8-15
	38-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
			İ	İ	İ
JeqA:			i I	j	İ
Urban land.					
Gilford	0-14	6.0-13.0-20.0		5.6-6.5-7.3	0
	14-32 32-38	4.0-9.0-14.0 1.0-5.0-9.0	 	5.6-6.5-7.3	0 0
	38-80	1.0-3.5-6.0	 	6.6-7.5-8.4	0-15-30
	30-00	1.0-3.3-0.0	 	0.0-7.5-0.4	0-15-50
TewA:			<u> </u>	İ	İ
Urban land.				j	İ
Brems		3.0-4.0-5.0		5.1-6.2-7.3	0
	9-27			5.1-6.2-7.3	0
	27-72		1.0-2.0-3.0	4.5-5.3-6.0	0
	72-80	1.0-2.0-3.0	 	5.1-5.8-6.5	0
Morocco	0-9	3.0-4.0-5.0	 	4.5-5.9-7.3	l 0
	9-60		1.0-3.5-6.0	4.5-5.3-6.0	0
İ	60-80	1.0-2.0-3.0	1.0-3.5-6.0	4.5-5.3-6.0	0
fbA: Urban land.			 	 	
OTDWH TAHO.			 	 	
Brookston	0-9	20.0-22.0-24.0	l 	6.1-6.7-7.3	l 0
· ··	9-48			6.1-7.0-7.8	0
	48-68			6.1-7.3-8.4	0-8-15
	68-80	2.0-5.5-9.0	I	7.4-7.9-8.4	15-25-35

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name 	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbonate equivalent
ļ	In	meq/100 g	meq/100 g	рН	Pct
JfhA:		 	 	 	
Urban land.			İ		
Coloma	0-12	1.0-6.5-12.0	 	 4.5-5.9-7.3	 0
	12-47	0.1-4.6-9.0		4.5-5.9-7.3	0
į	47-80	0.4-5.7-11.0		4.5-5.9-7.3	0
 JfhB: Urban land.		 	 	 	
Coloma	0-12	1.0-6.5-12.0		4.5-5.9-7.3	0
l I	12-47 47-80	0.1-4.6-9.0	 	4.5-5.9-7.3	0 0
	47-00			4.5-5.5-7.5	
UfhC: Urban land.		 	 	 	
Coloma	0-12	1.0-6.5-12.0	 	 4.5-5.9-7.3	 0
	12-47	0.1-4.6-9.0		4.5-5.9-7.3	l 0
į	47-80	0.4-5.7-11.0		4.5-5.9-7.3	0
UfmA: Urban land.		 	 	 	
Coupee	0-21	10.0-12.5-15.0	 	 5.1-7.0-7.3	 0
	21-33	9.0-16.0-23.0		4.5-5.6-6.0	0
į	33-52	2.0-3.0-5.0	1.0-4.0-7.0	4.5-5.3-6.0	0
	52-98	1.0-2.0-3.0	1.0-2.5-4.0	4.5-5.3-6.0	0
JfrA: Urban land.		 	 	 	
Del Rey	0-9	 17.0-19.0-21.0	 	 5.6-6.5-7.3	 0
i	9-33	18.0-21.0-24.0		4.5-5.9-7.3	0-5-10
ļ	33-90	12.0-15.0-18.0		7.9-8.2-8.4	5-23-40
JftA: Urban land.		 	 	 	
Elston	0-20	5.0-12.0-19.0		 5.1-6.2-7.3	 0
j	20-34	5.0-7.0-15.0		5.1-5.6-6.0	0
	34-72	3.0-4.0-8.0		5.1-5.6-6.5	0
	72-80	1.0-2.5-4.0		6.6-7.9-8.4	0-30-40
UfzA: Urban land.		 	 	 	
Mishawaka	0-12	10.0-13.0-16.0	 	5.1-6.5-7.3	0
į	12-18	4.0-8.0-12.0		5.1-5.6-6.0	0
	18-25	•		5.1-5.6-6.0	0
	25-58	•		5.1-5.6-6.0	0
	58-80	1.0-2.0-3.0	 	5.1-5.6-6.0	0
JgaA: Urban land.		 	 	 	
Morocco	0-9	3.0-4.0-5.0	 	 4.5-5.9-7.3	 0
i	9-60	•	1.0-3.5-6.0	4.5-5.3-6.0	0
		· ·	1.0-3.5-6.0	4.5-5.3-6.0	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рн	Pct
T=13.					
UglA: Urban land.					
İ	į		ĺ	İ	ĺ
Osolo	0-9	2.0-3.5-5.0		5.1-6.2-7.3	0
	9-25	1.0-2.0-3.0		5.1-6.2-7.3	0
	25-40 40-80	1.0-2.0-3.0	 	5.1-6.2-7.3	0 0
	40-00	1.0-2.0-3.0	 	5.1-0.2-7.5	1
JgrA: Urban land.					
Rensselaer	0-15	11.0-19.5-28.0	 	6.1-6.7-7.3	 0
Remberaer	15-38	10.0-18.5-27.0	 	6.1-6.7-7.3	1 0
	38-42	9.0-14.5-20.0		6.6-7.2-7.8	0-10-20
	42-76	4.0-9.0-14.0		7.4-7.9-8.4	15-28-40
İ	76-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
JgsA: Urban land.	 -		 	 	
Riddles	0.0	3.0-8.0-13.0	 	5.6-6.5-7.3	
RIGGIES	0-8 8-13	7.0-13.5-20.0	 	4.5-5.9-7.3	0 0
	13-33	6.0-12.0-18.0	 	6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0	 	7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Oshtemo	0-9	4.0-9.0-14.0	 	5.1-6.5-7.3	0
	9-14	4.0-9.0-14.0		5.1-6.5-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0	 	7.4-7.9-8.4	20-30-40
JgsB: Urban land.	 		 	 	
Riddles	0-8	3.0-8.0-13.0		5.6-6.5-7.3	0
	8-13	7.0-13.5-20.0		4.5-5.9-7.3	0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90 90-100	2.0-6.5-11.0 5.0-9.5-14.0	 	5.1-6.2-7.3	0 15-28-40
	90-100	5.0-9.5-14.0	 	7.4-7.9-8.4	15-28-40
Oshtemo	0-9	4.0-9.0-14.0		5.1-6.5-7.3	0
	9-14	4.0-9.0-14.0		5.1-6.5-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
JgvA:	60-80 	1.0-3.0-5.0	 	7.4-7.9-8.4 	20-30-40
Urban land.			 	[]	
Tyner	0-12	3.0-4.0-5.0		4.5-5.9-7.3	0
j	12-20	2.0-4.0-6.0		4.5-5.9-7.3	0
j	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
	41-80	1.0-2.0-3.0		4.5-5.9-7.3	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рн	Pct
 JgvB:			l I		
Urban land.	İ		İ		
m	0.10	2 0 4 0 5 0			
Tyner	0-12 12-20	3.0-4.0-5.0 2.0-4.0-6.0	 	4.5-5.9-7.3	0 0
	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
İ	41-80	1.0-2.0-3.0	i	4.5-5.9-7.3	0
JgvC: Urban land.					
 Tyner	0-12	3.0-4.0-5.0	 	4.5-5.9-7.3	 0
i	12-20	2.0-4.0-6.0	i	4.5-5.9-7.3	0
j	20-41	1.0-3.5-6.0		4.5-5.9-7.3	0
	41-80	1.0-2.0-3.0		4.5-5.9-7.3	0
UgvD: Urban land.	 		 	 	
į	į		İ	İ	
Tyner	0-12	3.0-4.0-5.0		4.5-5.9-7.3	0
ļ	12-20 20-41	2.0-4.0-6.0 1.0-3.5-6.0	 	4.5-5.9-7.3	0 0
	41-80	1.0-3.5-6.0		4.5-5.9-7.3	0 0
İ			İ		
JhmA: Urban land.			 	 	
Hillsdale	0-8	4.0-8.0-12.0	 	5.6-6.5-7.3	 0
	8-14	4.0-7.5-11.0		5.1-6.2-7.3	0
j	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
JhmB: Urban land.	 		 	 	
		4 0 0 0 10 0			
Hillsdale	0-8 8-14	4.0-8.0-12.0 4.0-7.5-11.0	 	5.6-6.5-7.3	0 0
i	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
ļ	44-84	3.0-7.0-11.0	i	5.1-5.8-7.3	0
JhoC:					
Urban land.			 		
Hillsdale	0-8	4.0-8.0-12.0		5.6-6.5-7.3	0
	8-14	4.0-7.5-11.0		5.1-6.2-7.3	0
	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
ļ	44-84	3.0-7.0-11.0	 	5.1-5.8-7.3	0
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	0
İ	9-14	5.0-9.0-15.0		5.1-6.2-7.3	0
	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0	 	/.4-/.9-8.4	20-30-40
JhoD: Urban land.			 -		
Hillsdale	0-8	4.0-8.0-12.0	 	5.6-6.5-7.3	 0
	8-14	4.0-7.5-11.0		5.1-6.2-7.3	0
İ	14-44	5.0-7.0-13.0	i	4.5-5.5-6.5	0
	44-84	3.0-7.0-11.0	i	5.1-5.8-7.3	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	pH	Pct
ĺ					
JhoD:					
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	0
ļ	9-14 14-35	5.0-9.0-15.0 5.0-8.0-15.0		5.1-6.2-7.3	0 0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0 0
ļ	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
JhpC: Urban land.	 		 	 	
Hillsdale	0-8	4.0-8.0-12.0		 5.6-6.5-7.3	 0
	8-14	4.0-7.5-11.0		5.1-6.2-7.3	l 0
	14-44	5.0-7.0-13.0		4.5-5.5-6.5	0
į	44-84	3.0-7.0-11.0		5.1-5.8-7.3	0
 Tracy	0-5	4.0-5.0-8.0	5.0-9.5-14.0	 4.5-5.0-5.5	 0
- '	5-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
j	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
JhpD: Urban land.	 		 	 	
Hillsdale	0-8	4.0-8.0-12.0		5.6-6.5-7.3	0
	8-14 14-44	4.0-7.5-11.0 5.0-7.0-13.0		5.1-6.2-7.3 4.5-5.5-6.5	0 0
	44-84	3.0-7.0-13.0		5.1-5.8-7.3	0
 Tracy	0-5	4.0-5.0-8.0	5.0-9.5-14.0	4.5-5.0-5.5	 0
Tracy	5-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0 0
i i	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	l 0
ļ	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
ThwA: Urban land.	 		 	 	
Martinsville	0-13	8.0-12.0-16.0		5.1-6.2-7.3	0
	13-35	9.0-15.5-22.0		5.1-5.8-6.5	0
	35-53	7.0-12.0-17.0		5.1-5.8-7.3	0
	53-60	1.0-7.0-13.0		7.4-7.4-8.4 	15-23-45
ThwB: Urban land.	 		 	 	
Martinsville	0-5	8.0-12.0-16.0		5.1-6.2-7.3	0
İ	5-35	9.0-15.5-22.0		5.1-5.8-6.5	0
	35-53	7.0-12.0-17.0		5.1-5.8-7.3	0
	53-60	1.0-7.0-13.0		7.4-7.4-8.4	15-23-45
ThwC: Urban land.				 	
Martinsville	0-5	8.0-12.0-16.0		 5.1-6.2-7.3	 0
	5-35	9.0-15.5-22.0		5.1-5.8-6.5	0
<u>'</u>	35-53	7.0-12.0-17.0		5.1-5.8-7.3	l 0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name 	Depth 	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рн	Pct
UkaA:		ļ			
Urban land.	i I	i I			
	i	i			İ
Maumee	0-23	8.0-9.0-10.0		5.6-6.7-7.8	0
	23-61	1.0-4.5-8.0		5.6-6.5-7.3	0
	61-80	1.0-2.0-3.0		6.1-7.3-8.4	0-20-40
UkeA:	I				
Urban land.	l I	 			
	'	i I			
Milford	0-18	14.0-21.0-28.0		5.6-6.5-7.3	0
	18-50	22.0-25.5-29.0		5.6-6.7-7.8	0-7-15
	50-60	4.0-11.0-18.0		6.6-7.5-8.4	0-15-30
UkxA:	ļ	ļ			
Urban land.	l I	l I]	
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	l 0
	9-14	5.0-9.0-15.0		5.1-6.2-7.3	0
İ	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
ĺ	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
	ļ				
UkxB: Urban land.		l I			
Urban land.	l I	I			l I
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	l 0
	9-14	5.0-9.0-15.0		5.1-6.2-7.3	0
j	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
	ļ				
UkxC: Urban land.		l I			
orban land.	l I				
Oshtemo	0-9	4.0-9.0-12.0		5.6-6.5-7.3	l 0
	9-14	5.0-9.0-15.0		5.1-6.2-7.3	0
ĺ	14-35	5.0-8.0-15.0		5.1-6.2-7.3	0
	35-60	2.0-5.5-9.0		5.6-6.5-7.3	0
	60-80	1.0-3.0-5.0		7.4-7.9-8.4	20-30-40
JmfB:		ļ			
Urban land.	l I				l I
orban rana.	ı İ	i I			
Riddles	0-8	3.0-8.0-13.0		5.6-6.5-7.3	0
İ	8-13	7.0-13.5-20.0		4.5-5.9-7.3	0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Metea	0 0	205500			 0
mecea	0-9 9-28	2.0-5.5-9.0 1.0-4.0-7.0		5.6-6.5-7.3	0 0
	28-32	6.0-10.0-15.0		5.6-6.1-6.5	0 0
ļ	32-44			5.6-6.5-7.3	l 0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
UmfC:					
Urban land.				 	
Riddles	0-5	3.0-8.0-13.0		5.6-6.5-7.3	l 0
11244200	5-13	7.0-13.5-20.0		4.5-5.9-7.3	0
i	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
i	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
i	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
j	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
Metea	0-7	2.0-5.5-9.0		5.6-6.5-7.3	0
	7-28	1.0-4.0-7.0		5.1-5.8-6.5	0
	28-32	6.0-10.0-15.0		5.6-6.1-6.5	0
	32-44	11.0-15.0-23.0		5.6-6.5-7.3	0
	44-80	5.0-9.5-14.0		5.6-7.0-8.4	0-20-40
				1	
UmfD:					
Urban land.					
Riddles	0-5 l	3.0-8.0-13.0		5.6-6.5-7.3	l 0
RIGGIES	5-13	7.0-13.5-20.0		4.5-5.9-7.3	l 0
	13-33	6.0-12.0-18.0		6.6-7.2-7.8	0-13-25
	33-63	4.0-9.0-14.0		7.4-7.9-8.4	15-25-35
	63-90	2.0-6.5-11.0		5.1-6.2-7.3	0
	90-100	5.0-9.5-14.0		7.4-7.9-8.4	15-28-40
i			İ		İ
Metea	0-7	2.0-5.5-9.0		5.6-6.5-7.3	0
i	7-28	1.0-4.0-7.0		5.1-5.8-6.5	0
	28-32	6.0-10.0-15.0		5.6-6.1-6.5	0
I	32-44	11.0-15.0-23.0		5.6-6.5-7.3	0
	44-80	5.0-9.5-14.0		5.6-7.0-8.4	0-20-40
UmpA:					
Urban land.					
Schoolcraft	0-14	5.0-10.0-15.0		5.1-6.5-7.3	0
	14-29 29-39	3.0-20.0-25.0 4.0-15.0-17.0		4.5-5.5-7.3	0 0
	39-77	1.0-3.5-6.0		4.5-5.9-7.3	0 0
	77-95	1.0-3.3-0.0		6.6-7.9-8.4	0-15-30
	77 55	1.0 2.0 3.0		0.0 7.5 0.1	1
UmuA:					
Urban land.	i		İ		İ
i	i		İ	İ	İ
Southwest	0-10	10.0-20.0-30.0		6.1-6.7-7.3	0
	10-23	10.0-20.0-30.0		6.1-6.7-7.3	0
I	23-34	20.0-28.0-36.0		6.1-6.7-7.3	0
	34-45	10.0-15.0-20.0		6.1-6.7-7.3	0
	45-75	10.0-21.5-33.0		6.1-6.7-7.8	0-7-15
	75-80	2.0-8.5-15.0		7.4-7.9-8.4	5-15-25
UmwA:	I				
Urban land.	. !				
_		4 0 5 0 0 0			1
Tracy	0-9	4.0-5.0-8.0	5.0-9.5-14.0	4.5-5.0-5.5	0
	9-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
UmwB:				 	
Urban land.					
 Tracy	0-9	4.0-5.0-8.0	5.0-9.5-14.0	 4.5-5.0-5.5	 0
	9-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
JmwC: Urban land.				 	
 Tracy	0-5	4.0-5.0-8.0	5.0-9.5-14.0	 4.5-5.0-5.5	 0
	5-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
j	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
JmwD: Urban land.		 		 	
 Tracy	0-9	4.0-5.0-8.0	5.0-9.5-14.0	 4.5-5.0-5.5	l 0
	9-47	4.0-7.0-9.0	4.0-8.5-13.0	4.5-4.8-5.0	0
j	47-60	3.0-10.0-12.0	2.0-9.0-16.0	4.5-4.8-5.0	0
ļ	60-86	1.0-3.5-6.0		5.6-5.8-6.0	0
JmxA: Urban land.		 		 	
 Troxel	0-50	14.0-20.0-26.0		 5.6-6.1-6.5	 0
İ	50-70	11.0-18.0-25.0		5.6-6.1-6.5	0
	70-91	5.0-9.0-13.0		5.6-6.7-7.8	0
JnoA: Urban land.		 		 	
Whitaker	0-17	5.0-11.0-17.0		5.6-6.5-7.3	0
İ	17-39	8.0-15.0-22.0		5.1-6.2-7.3	0
	39-48	3.0-7.0-11.0		5.1-5.8-6.5	0
	48-86	2.0-7.5-13.0		6.1-7.3-8.4	0-23-45
JnqB: Urban land.				 	
Williamstown	0 - 7	4.0-10.5-17.0		5.1-6.2-7.3	 0
į	7-34	9.0-16.0-23.0		5.1-6.2-7.3	0
	34-39			6.6-7.5-8.4	0-20-40
	39-80	2.0-5.5-9.0		7.4-7.9-8.4	15-27-40
Crosier	0-11	7.0-12.0-17.0		 5.6-6.5-7.3	l 0
İ	11-30	:		5.1-6.2-7.3	0
	30-38	3.0-9.5-16.0		6.1-7.3-8.4	0-8-15
	38-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
UntA: Urban land.		 		 	
Wunabuna, drained	0-21	10.0-18.0-25.0		 6.1-7.0-7.8	0-0-15
İ		10.0-30.0-40.0		6.1-7.0-7.8	0-0-15
İ	32-38	15.0-35.0-40.0		6.1-7.0-7.8	0-7-15
	38-80	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
Usl: Udorthents, rubbish.		 		 	

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction 	Calcium carbonate equivalent
	In	meq/100 g	meq/100 g	рН	Pct
W:					
Water.					
WcnAI:					
Waterford	0 - 8	4.0-8.0-17.0		6.1-7.0-7.8	0
	8-41	4.0-8.0-16.0		6.1-7.0-7.8	0
	41-46 46-50	1.0-2.0-3.0		6.6-7.2-7.8	0-1-5 0
	50-80	1.0-2.0-3.0		6.6-7.5-8.4	5-15-25
WoaA: Williamstown	0 - 7	4.0-10.5-17.0		5.1-6.2-7.3	 0
WIIIIams COWII	7-34	9.0-16.0-23.0		5.1-6.2-7.3	l 0
İ	34-39	6.0-11.0-16.0		6.6-7.5-8.4	0-20-40
	39-80	2.0-5.5-9.0		7.4-7.9-8.4	15-27-40
WoaB2:					
Williamstown	0-5	4.0-10.5-17.0		5.1-6.2-7.3	0
	5-34	9.0-16.0-23.0		5.1-6.2-7.3	0
	34-39	6.0-11.0-16.0		6.6-7.5-8.4	0-20-40
	39-80	2.0-5.5-9.0		7.4-7.9-8.4	15-27-40
WoaC2:		i i			İ
Williamstown	0-5	4.0-10.5-17.0		5.1-6.2-7.3	0
	5-34	9.0-16.0-23.0		5.1-6.2-7.3	0
	34-39 39-80	6.0-11.0-16.0 2.0-5.5-9.0		6.6-7.5-8.4 7.4-7.9-8.4	0-20-40
j		i i		i	İ
WobB:		!			!
Williamstown	0-7	4.0-10.5-17.0		5.1-6.2-7.3	0 0
	7-34 34-39	9.0-16.0-23.0 6.0-11.0-16.0		5.1-6.2-7.3	0-20-40
	39-80	2.0-5.5-9.0		7.4-7.9-8.4	15-27-40
Georgian	0 11				
Crosier	0-11 11-30	7.0-12.0-17.0 8.0-14.0-20.0		5.6-6.5-7.3	0 0
	30-38	3.0-9.5-16.0		6.1-7.3-8.4	0-8-15
	38-80	2.0-5.5-9.0		7.4-7.9-8.4	15-25-35
WrxAN:					
Wunabuna, drained	0-21	10.0-18.0-25.0		6.1-7.0-7.8	 0-0-15
	21-32	10.0-30.0-40.0		6.1-7.0-7.8	0-0-15
j	32-38	15.0-35.0-40.0		6.1-7.0-7.8	0-7-15
	38-80	125.0-185.0-230.0		5.1-6.5-7.3	0-0-10
WtbA:		 		1	
Whitaker	0-17	5.0-11.0-17.0		5.6-6.5-7.3	0
	17-39	1		5.1-6.2-7.3	0
	39-48	3.0-7.0-11.0		5.1-5.8-6.5	0
	48-86	2.0-7.5-13.0		6.1-7.3-8.4	0-23-45
WujB:					!
Williamstown	0 - 7	4.0-10.5-17.0		5.1-6.2-7.3	0
İ	7-34	9.0-16.0-23.0		5.1-6.2-7.3	0
	34-39	6.0-11.0-16.0		6.6-7.5-8.4	0-20-40
	39-80	2.0-5.5-9.0		7.4-7.9-8.4	15-27-40
Moon	0-9	2.0-5.5-9.0		5.6-6.5-7.3	 0
j	9-23	1.0-4.0-7.0		4.5-5.9-7.3	0
İ	23-35	6.0-10.5-15.0		5.1-6.2-7.3	0
	35-45	11.0-17.0-23.0		5.6-6.5-7.3	0
	45-80	5.0-9.5-14.0		7.4-7.9-8.4	0-20-40

Table 19.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of flooding from stream gauge data where available. Null values for water table indicate depth is >6.0 feet or greater than the bottom depth of a bedrock layer. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

			Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				
_									
AahAK:									
Abscota	A I		2.5-3.5	> 6.0			None	Brief	None
	 	: -		> 6.0	!	!	None		Occasiona
	 	Jun					None	Brief	Occasiona
		Jul-Sep					None		None
		Oct	2.5-4.5	> 6.0			None		None
		Nov	2.5-4.0	> 6.0			None		None
	 	Dec	2.5-3.5	> 6.0			None		None
AatAN:	 			1	1		 		
Ackerman, drained	 A	Jan-Mar	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
nonorman, aramou		Apr	0.0-1.0	> 6.0	0.0-2.0	Long	Frequent		None
	 	May	1.0-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
	 	Jun	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Jul	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
	l I	:	4.0-6.7	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Aug-Sep Oct	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Nov	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	:	0.0-0.5	> 6.0	0.0-2.0		Frequent		None
	 	Dec	0.0-0.5	> 0.0	0.0-2.0	Long	Frequent		None
AbhAN:	 								
Adrian, drained	A	Jan-Mar	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
	İ	Apr	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
	! 	Jun	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Jul-Sep			0.0-1.0	Brief	Occasional		None
	 	Oct	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Nov	0.5-2.0	> 6.0	0.0-2.0	Brief	Occasional		None
	 	Dec	0.5-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
							i .		i
AbhAU:	İ	į	İ	į	j	İ	j j		i
Adrian, undrained	D	Jan-Jun	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jul-Aug			0.0-2.0	Brief	Frequent		None
		Sep			0.0-1.0	Brief	Occasional		None
		Oct-Nov			0.0-2.0	Brief	Frequent		None
		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
									1
ApuAN:									
Antung, drained	A	:	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
		Apr	0.0-1.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	1.0-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	1.0-3.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Jul	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Aug-Sep	4.0-6.7		0.0-1.0		Occasional		None
		Oct	1.3-4.0		0.0-1.0		Occasional		None
		Nov	1.0-3.0	> 6.0	0.0-2.0	Brief	Occasional		None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
3									
AxvA: Auten	 B	Tan Ma	10 5 2 0				Nor-		Mone
Aucen	5		0.5-2.0		-	!	None		None
	 	Apr	0.5-1.5				None		None
	l I	May	0.5-1.7				None		None
	 	Jun-Oct					None		None
	1	Nov-Dec	0.5-2.0	> 6.0			None		None

Table 19.--Water Features--Continued

l		I	Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				!
D3									-
BaaA: Bainter	В	 Jan-Dec	l 		l 	 	None		None
Bainter	ь	Jan-Dec					None		None
BaaB:			i	İ			i		i
Bainter	В	Jan-Dec					None		None
i		į	į	İ	į	İ	i i		İ
BaaC2:									
Bainter	В	Jan-Dec					None		None
									!
BbmA:	a								
Baugo	С	Jan Feb	0.5-3.0	4.2-5.0			None		None
			0.5-1.5				None		None
		May	0.5-2.5	> 6.0			None		None
		Jun	1.0-3.0				None		None
		Jul-Oct					None		None
		Nov	2.0-3.0	1			None		None
		Dec	1.0-3.0				None		None
		200			İ		10110		
BmgA:		İ	i	İ	i		i		i
Blount	C	Jan	0.5-3.0	2.5-4.2			None		None
i		Feb	0.5-2.5	2.5-4.2		i	None		None
i		Mar-Apr	0.5-1.5	> 6.0			None		None
İ		May	0.5-2.5	> 6.0			None		None
İ		Jun	1.0-3.0	2.5-4.2			None		None
I		Jul-Oct					None		None
I		Nov	2.0-3.0	2.5-4.2			None		None
I		Dec	1.0-3.0	2.5-4.2			None		None
I									
BshA:									
Brady	В	Jan-Mar	0.5-2.0	> 6.0			None		None
		Apr	0.5-1.5	> 6.0			None		None
		May	0.5-1.7	> 6.0			None		None
		Jun-Oct					None		None
		Nov-Dec	0.5-2.0	> 6.0			None		None
BsxA:									I I
Brems	A	Jan-May	2 0-3 0	> 6.0			None		None
DI GMS		Jun-Sep					None		None
i		Oct-Dec	1	> 6.0			None		None
i					i	İ			
Morocco	В	Jan-Mar	0.5-2.0	> 6.0			None		None
i		Apr	0.5-1.5	> 6.0		i	None		None
i		May	0.5-1.7	> 6.0	i		None		None
i		Jun-Aug	j	i	i		None		None
İ		Sep-Dec	0.5-2.0	> 6.0			None		None
İ							l Ì		
BteA:									
Brems	A	Jan-May	2.0-3.0	> 6.0			None		None
		Jun-Sep					None		None
		Oct-Dec	2.0-3.0	> 6.0			None		None
BuuA:	_								
Brookston	В		0.5-1.0	:	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	> 6.0	0.0-0.5	Brief	Frequent		None
		Jun-Oct			0.0-0.5	Brief	Rare		None
I		Nov	0.5-2.0	> 6.0 > 6.0	0.0-0.5	Brief Brief	Rare Frequent		None None
l l		Dec							

Table 19.--Water Features--Continued

		I	Water	table	<u> </u>	Ponding		Flood	ıng
Map symbol	Hydro-	Month	Upper	Lower	:	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group		<u> </u>	<u> </u>	depth	1			1
			Ft.	Ft.	Ft.		 		
mbAI:		 	1	I I	1	 			l I
Cohoctah	 B	 Jan-Apr	0.0-0.5	> 6.0			None	Brief	Frequen
	=	May	0.0-1.0	> 6.0			None	Brief	Frequen
i		Jun	1.0-1.5	> 6.0			None		None
i		Jul	1.5-3.3				None		None
i		Aug-Sep	3.3-6.0	> 6.0		i	None		None
i		Oct	1.5-5.0	> 6.0			None		None
		Nov	1.0-1.5	> 6.0			None	Brief	Frequen
		Dec	0.0-1.0	> 6.0			None	Brief	Frequen
nbA:									
Coloma	A	Jan-Dec					None		None
nbB:									İ
Coloma	A	Jan-Dec					None		None
nbC:		İ				İ	į ;		į
Coloma	A 	Jan-Dec					None		None
nbD:		į	į	į	į	į	į į		į
Coloma	A 	Jan-Dec 					None		None
rA:		į	į	į		į	į		į
Coupee	B I	Jan-Dec					None		None
rdA:				İ		İ	i		
Crosier	C	Jan	0.5-3.0	2.0-3.3			None		None
		Feb	0.5-2.5	2.0-3.3			None		None
		Mar-Apr	0.5-1.5	> 6.0			None		None
		May	0.5-2.5				None		None
		Jun	1.0-3.0	2.0-3.3			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0				None		None
		Dec	1.0-3.0	2.0-3.3			None		None
rdB:		İ	i	İ	İ	į	i i		i
Crosier	C	Jan	0.5-3.0				None		None
		Feb	0.5-2.5				None		None
		-	0.5-1.5				None		None
		May	0.5-2.5				None		None
		Jun	1.0-3.0	:			None		None
		Jul-Oct					None		None
		Nov Dec	2.0-3.0 1.0-3.0				None		None None
ole A •							İ		
rkA: Crumstown	 B	 Jan-Mav	3.5-6.7	> 6.0			None		None
		Jun-Sep					None		None
			3.5-6.7	> 6.0			None		None
vkB:		 							
Crumstown	В	Jan-May	3.5-6.7	> 6.0			None		None
j		Jun-Sep					None		None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood	ling
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				Ţ
				!	!				!
DcrA:									
Del Rey	C	Jan		2.0-4.0			None		None
		Feb		2.0-4.0			None		None
		Mar-Apr	10.0	> 6.0			None		None
		May	10.0 2.0	> 6.0			None		None
		Jun	1.0-3.0	2.0-4.0		 	None None		None
		Jul-Oct Nov	2.0-3.0	1			None		None None
		Dec	1.0-3.0				None		None
		Dec	1	2.0-4.0			None		None
EchAN:				1			 		
Edwards, drained	 В	Jan-Mar	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
	i '	Apr	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
İ		Jul-Sep	i	j	0.0-1.0	Brief	Occasional		None
		Oct	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Nov	0.5-2.0	> 6.0	0.0-2.0	Brief	Occasional		None
		Dec	0.5-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
EchAU:									
Edwards, undrained	D	Jan-Jun	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jul-Aug			0.0-2.0	Brief	Frequent		None
		Sep			0.0-1.0	Brief	Occasional		None
		Oct-Nov			0.0-2.0	Brief	Frequent		None
		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
				!					
EcrAN:									
Edselton, drained	В	Jan-Apr	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
		May	10.0 1.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	0.5-1.3	> 6.0	0.0-1.0	Brief	Occasional		None
		Jul	1200	> 6.0 > 6.0	0.0-1.0	Brief Brief	Occasional Occasional		None
		Aug-Sep Oct	4.0-6.7 1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None None
		Nov	0.5-1.3	> 6.0	0.0-1.0	Brief	Occasional		None
		Dec		> 6.0	0.0-2.0	Brief	Frequent		None
		200		2 0.0		DIICI	rrequenc		Mone
EcrAU:		İ		i	İ				i
Edselton, undrained	 D	Jan-May	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
i		Jul-Aug	0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None
		Sep	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Oct-Nov	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
EmeA:									I
Elston	В	Jan-Dec					None		None
									Į.
GczA:									Į.
Gilford	В	: -	0.0-1.0		0.0-0.5	Brief	Frequent		None
		May	0.0-2.0		0.0-0.5		Frequent		None
		Jun	1.0-3.0				None		None
		Jul	3.0-6.7				None		None
		Aug-Sep					None		None
		Oct Nov	3.0-6.7 1.0-3.0				None None		None None
		Dec	0.0-1.0		0.0-0.5	 Brief	None Frequent		None
		Dec	10.0-1.0	- 0.0	10.0-0.5	prier	1 Treductio		HOHE

Table 19.--Water Features--Continued

	l	1	:	table		Ponding		Flood	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group		<u> </u>	l	depth	<u> </u>			1
	 	 	Ft.	Ft.	Ft.	1	 		
dnA:	 			 	İ				
Gilford	 B	Jan-Apr	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
	İ	May	0.0-2.0	> 6.0	0.0-0.5	Brief	Frequent		None
	İ	Jun	1.0-3.0	> 6.0			None		None
	İ	Jul	3.0-6.7	> 6.0			None		None
	İ	Aug-Sep		i			None		None
	İ	Oct	3.0-6.7	> 6.0			None		None
		Nov	1.0-3.0	> 6.0			None		None
		Dec	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
ban:									
Menrietta, drained	В.		0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
		Apr-May	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jun	0.0	> 6.0			None		None
		Jul-Sep					None		None
		Oct	0.5-1.0	> 6.0			None		None
		Nov-Dec	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
-batt.	l I	l I		1		1			1
DAU:	_					-			
Henrietta, undrained	D D	Jan-Jun	0.0	> 6.0	0.0-2.0	Long Brief	Frequent		None
	 	Jul-Aug			0.0-2.0		Frequent		None
	 	Sep Oct-Nov			0.0-1.0	Brief	Occasional		None
	 	Dec Dec	0.0		0.0-2.0	Brief	Frequent		None None
	l I	Dec	1 0.0	> 0.0	0.0-2.0	Long	Frequent		None
kA:	 	l I	1	 		1			
Hillsdale	। в	Jan-Dec					None		None
illibuulo	2	Jun Dec							None
kB:	 	i							i
illsdale	। в	Jan-Dec				i	None		None
	. – I		İ	İ		i			
mC2:		i	İ	i		i	i i		i
illsdale	B	Jan-Dec					None		None
		İ	İ	i		i			i
shtemo	В	Jan-Dec					None		None
	İ	i	İ	i	i	i	i i		i
mD2:	İ	İ	İ	i	j	i	i i		i
illsdale	В	Jan-Dec		i			None		None
	İ	İ	İ	į	İ	İ	i i		İ
shtemo	В	Jan-Dec					None		None
				İ	İ	İ	İ		İ
tpC2:									
illsdale	В	Jan-Dec					None		None
racy	В	Jan-Dec					None		None
pD2:		[
illsdale	В	Jan-Dec					None		None
racy	B	Jan-Dec					None		None
bAN:									
oughton, drained	A		0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
	 	Apr	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
	 	Jun	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
	 	Jul-Sep			0.0-1.0	Brief	Occasional		None
		Oct	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional		None
	l I				i				·
	 	Nov	0.5-2.0	> 6.0 > 6.0	0.0-2.0	Brief	Occasional Frequent		None None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				1
	group				depth		<u> </u>		
			Ft.	Ft.	Ft.				1
HtbAU:		 	 		1	 	 		l I
Houghton, undrained	D	Jan-Jun	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jul	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
i		Aug	0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None
i		Sep		i	0.0-1.0	Brief	Occasional		None
i		Oct-Nov	i	j	0.0-2.0	Brief	Frequent		None
j		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
JaaAK:	_	_							
Jamestown	С	Jan		3.5-5.8			None	Brief	Occasiona
		Feb	0.5-2.5				None	Brief	Occasiona
		Mar	0.5-2.0	> 6.0			None	Brief	Occasiona
		Apr-May	0.5-1.5				None	Brief	Occasiona
		Jun Jul-Oct	0.5-1.5	3.5-5.9		 	None	Brief Brief	Occasiona
		Nov-Dec	1	3.5-5.9			None	Brief	Occasiona
		NOV-Dec	1.0-3.0	3.5-5.9			None	Brier	Occasiona
MfaA:							i :		ĺ
Martinsville	В	Jan-Dec					None		None
		į	į	į	i	į	i i		i
MfaB2:		İ	İ	İ	İ		į į		İ
Martinsville	В	Jan-Dec					None		None
							[[
MfaC2:									
Martinsville	В	Jan-Dec					None		None
MfrAN:									
Madaus, drained	В	Jan-Mar	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
		Apr	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Jul-Sep			0.0-1.0	Brief	Occasional		None
		Oct	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Nov	0.5-2.0	> 6.0	0.0-2.0	Brief	Occasional		None
		Dec	0.5-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
MfrAU:		 	 		1	 	 		l I
Madaus, undrained	D	Jan-May	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
i		Jul-Aug	0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None
i		Sep	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
i		Oct-Nov	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
i		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
j							ı i		
MgcA:							i i		
Maumee	A	Jan-Mar	0.5-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
		Apr-May			0.0-0.5	Brief	Frequent		None
		Jun-Sep					None		None
		Oct	0.5-1.0	> 6.0			None		None
		Nov-Dec	0.5-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
MgdAN:	_								
Martisco, drained	В		0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	0.5-1.3		0.0-1.0	Brief	Occasional		None
		Jul	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Aug-Sep	4.0-6.7		0.0-1.0	Brief	Occasional		None
		Oct	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Nov	0.5-1.3		0.0-2.0	Brief	Occasional		None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				
									-
MhaA:									
Maumee	A		0.0-0.5	> 6.0	0.0-0.5	Brief	Frequent		None
	 	Aug	1.0-2.0	> 6.0 > 6.0			None None		None None
	l I		0.0-1.0	> 6.0			None		None
	 	Nov	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
	! 	Dec	0.0-0.5	> 6.0	0.0-0.5	Brief	Frequent		None
		i		ì		i			
MhbA:	İ	i	i	i	i	i	i i		i
Maumee	A	Jan-May	0.0-0.5	> 6.0	0.0-0.5	Brief	Frequent		None
		Jun-Jul	0.0-1.0	> 6.0	0.0-0.5	Brief	Rare		None
		Aug	1.0-2.0	> 6.0	0.0-0.5	Brief	Rare		None
		Sep-Oct	0.0-1.0	> 6.0	0.0-0.5	Brief	Rare		None
		Nov	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
		Dec	0.0-0.5	> 6.0	0.0-0.5	Brief	Frequent		None
			[
MmbC2:									
Miami	B		2.0-3.5				None		None
		Jul-Oct					None		None
	l	Nov	2.0-3.5				None		None
	l	Dec	2.5-3.5	2.5-3.5			None		None
MmdC3:	l I	 		1	1	1	 		
Miami	 B	 .Tan=.Tun	2.0-3.5	12 5-3 5			None		None
TI CINI	2	Jul-Oct					None		None
	! 	Nov	2.0-3.5	2.5-3.5			None		None
		Dec	2.5-3.5				None		None
				1	i	i			
MmdD3:	İ	İ	İ	į	İ	İ	i i		į
Miami	В	Jan-Jun	2.0-3.5	2.5-3.5			None		None
		Jul-Oct					None		None
		Nov	2.0-3.5	2.5-3.5			None		None
		Dec	2.5-3.5	2.5-3.5			None		None
MouA:		!		!					
Milford	В	Jan-May	0.0	> 6.0	0.0-1.0	Brief	Frequent		None
		Jun-Jul	0.0	> 6.0			None		None
	l	Aug-Oct	0.0		0.0-1.0	Brief	None		None
	l I	Nov-Dec	0.0	> 0.0	0.0-1.0	Prier	Frequent		None
MsaA:	l I	 	1	1	1	1	 		
Mishawaka	 A	Jan-Dec		i			None		None
112214114114	. 			İ	İ	İ	10110		
MtsB2:		i	i	ì	i	i	i i		i
Morley	C	Jan	1.0-3.0	1.7-3.3			None		None
-	İ	Feb-May	1.0-2.5	1.7-3.3		j	None		None
	İ	Jun	1.0-3.0	1.7-3.3			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0	1.7-3.3			None		None
		Dec	1.5-3.0	1.7-3.3			None		None
MtsC2:									
Morley	C	Jan	1.0-3.0				None		None
			1.0-2.5				None		None
		Jun		1.7-3.3			None		None
							None		None
		Nov	2.0-3.0				None		None
	I	Dec	1.5-3.0	1.7-3.3			None		None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				ļ
	group		<u> </u>	<u> </u>	depth				
		 	Ft.	Ft.	Ft.		 		l I
MubD3:		l I	1	1	1	1			
Morley	С	 Jan	1.0-3.0	1.7-3.3			None		None
1.02207		Feb-May		1.7-3.3			None		None
i		Jun		1.7-3.3			None		None
i		Jul-Oct		i			None		None
i		Nov	2.0-3.0	1.7-3.3	i		None		None
i		Dec	1.5-3.0	1.7-3.3			None		None
I									
MvhAN:									
Moston, drained	A	Jan-Apr	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
I		May	0.0-1.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun	0.5-1.3	> 6.0	0.0-1.0	Brief	Occasional		None
		Jul	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
			4.0-6.7	> 6.0	0.0-1.0	Brief	Occasional		None
		Oct	1.3-4.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Nov	0.5-1.3	> 6.0	0.0-2.0	Brief	Occasional		None
		Dec	0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None
MvhAU:		I 	1	1	1	 			1
Moston, undrained	D	Jan-May	0.0	> 6.0	0.0-2.0	Long			None
Moscon, undramed	D	Jun	0.0-0.5	> 6.0	0.0-2.0	Long	Frequent		None
i			0.0-0.5	> 6.0	0.0-2.0	Brief	Frequent		None
i		Sep	0.0	> 6.0	0.0-1.0	Brief	Occasional		None
i		Oct-Nov	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
i		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
i		İ	İ	İ	i	İ	i - i		į
MvkA:		ĺ		İ	İ		İ		İ
Morocco	В	Jan-Mar	0.5-2.0	> 6.0			None		None
I		Apr	0.5-1.5	> 6.0			None		None
I		May	0.5-1.7	> 6.0			None		None
I		Jun-Aug					None		None
I		Sep-Dec	0.5-2.0	> 6.0			None		None
MwzAN:									
Muskego, drained	A		0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
		Apr	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		May	0.0	> 6.0 > 6.0	0.0-2.0	Brief	Frequent		None
		Jun Jul-Sep	0.0	> 6.0	0.0-1.0	Brief Brief	Occasional Occasional		None None
		Oct	0.5-2.0	> 6.0	0.0-1.0	Brief	Occasional		None
		Nov	0.5-2.0	> 6.0	0.0-2.0	Brief	Occasional		None
i		Dec	0.5-2.0	> 6.0	0.0-2.0	Brief	Frequent		None
i		İ		ì					i
MwzAU:		i	İ	i	i	İ	i i		i
Muskego, undrained	D	Jan-Jun	0.0	> 6.0	0.0-2.0	Long	Frequent		None
İ		Jul-Aug	i	i	0.0-2.0	Brief	Frequent		None
j		Sep	i		0.0-1.0	Brief	Occasional		None
I		Oct-Nov			0.0-2.0	Brief	Frequent		None
I		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
I									
OkrA:									
Oshtemo	В	Jan-Dec					None		None
									!
OkrB:	_			1					
Oshtemo	В	Jan-Dec					None		None
Okras •		I I	 	1	1	 			1
OkrC2: Oshtemo	В	 Jan-Dec	l l	I I	I I	I I -	None		None
Oburemo	D	uam-nec					NOTE		None
		I	1	1	1	1	ı I		1
OkrD:		i	İ	i	i	i	į į		İ
OkrD:	В	Jan-Dec		i 			None		None

Table 19.--Water Features--Continued

		I	Water	table	1	Ponding		Flood	iing
Map symbol	Hydro-	Month	Upper	Lower	:	Duration	Frequency	Duration	Frequenc
and soil name	logic		limit	limit	water				
	group	1	 Ft.	Ft.	depth Ft.	1			
		 	FC.	FC.	FC.	 			
OlcA:			i	İ					
Oshtemo	В	Jan-Dec	j	j	j	·	None		None
OlcB:									
Oshtemo	В	Jan-Dec					None		None
DlcC2:				1					
Oshtemo	В	 Jan-Dec				 	None		None
	-		i	i			10110		1.0110
OlcD:		i	į	İ	İ	İ	i i		i
Oshtemo	В	Jan-Dec					None		None
OmgA:									
Osolo	A		3.5-6.7	> 6.0			None		None
		Jun-Sep Oct-Dec	3.5-6.7				None None		None
		000-200	3.3-0.7	> 0.0			None		110116
PaaAN:			i	i					i
Palms, drained	A	Jan-Mar	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
		Apr-May	0.0	> 6.0	0.0-2.0	Long	Frequent		None
		Jun	0.0	> 6.0			None		None
		Jul-Sep					None		None
		Oct	0.5-1.0	> 6.0			None		None
		Nov-Dec	0.5-1.0	> 6.0	0.0-2.0	Long	Frequent		None
PaaAU:				1					
Palms, undrained	D	 Jan-Jun	0.0	> 6.0	0.0-2.0	Long	Frequent		None
raimb, anarainea	2	Jul-Aug			0.0-2.0	Brief	Frequent		None
		Sep			0.0-1.0	Brief	Occasional		None
		Oct-Nov	j	j	0.0-2.0	Brief	Frequent		None
		Dec	0.0	> 6.0	0.0-2.0	Long	Frequent		None
			!	!					
Pmg:									
Pits, gravel.				1					
PxlA:		 		ì					
Psammaquents		Jan-Mar	0.5-2.0	> 6.0			None		None
_		Apr-May	0.5-1.5	> 6.0	j	·	None		None
		Jun-Aug					None		None
		Sep-Dec	0.5-2.0	> 6.0			None		None
_									
Pxo:									
Psamments.		 	1	l I	1	1			l I
QuiA:		 		ì					
Quinn	В	Jan-Mar	0.0-1.0	2.5-3.5			None		None
		Apr-May	0.0-3.0	2.5-3.5	j	·	None		None
		Jun	1.0-3.0	2.5-3.5			None		None
		Jul-Dec					None		None
QujA:	Б	Tam 25	10010	12 5 2 5			None		37
Quinn	В		0.0-1.0				None None		None
		Apr-may Jun	1.0-3.0				None		None
		Jul-Dec	:				None		None
		i	į	į	į	į			
RenA:		[ı i		
Rensselaer	В	Jan-Mar	0.5-1.0			Brief	Frequent		None
		Apr-May		> 6.0	0.0-0.5		Frequent		None
		Jun-Oct			0.0-0.5		Rare		None
		Nov	0.5-2.0		1000	Brief	Rare		None
		Dec	0.5-2.0	> 6.0	0.0-0.5	Brief	Frequent		None

Table 19.--Water Features--Continued

	l	1		table	<u> </u>	Ponding		Flood	
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic	!	limit	limit	water	!			
	group	1	1 -	1	depth	1			
	 		Ft.	Ft.	Ft.	1			
ReyA:	 					1	 		l I
Rensselaer	 B	 Jan-Mar	0.5-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
Kensserder	1	Apr-May	0.0	> 6.0	0.0-0.5	Brief	Frequent		None
	 	Jun-Oct			0.0-0.5	Brief	Rare		None
	 	Nov	0.5-2.0	> 6.0	0.0-0.5	Brief	Rare		None
	 	Dec	0.5-2.0	> 6.0	0.0-0.5	Brief	Frequent		None
	 	1					110440110		1.0110
RopA:	' 	İ	i	i		i	i		i
Riddles	В	Jan-Dec				i	None		None
	İ	i	i	i	i	i	i i		i
Oshtemo	В	Jan-Dec	j	j	i	i	None		None
	İ	İ	İ	Ì	İ	İ	i i		i
RopB:		ĺ	İ	ĺ		İ			İ
Riddles	В	Jan-Dec					None		None
		1							
Oshtemo	В	Jan-Dec					None		None
RopC2:									
Riddles	В	Jan-Dec					None		None
Oshtemo	В	Jan-Dec					None		None
RopD2:									
Riddles	В	Jan-Dec					None		None
Oshtemo	В	Jan-Dec					None		None
		!	!	!		!			
RoqB:		!	!	!		!			
Riddles	B	Jan-Dec					None		None
	_								
Metea	B	Jan-Dec					None		None
Do = CO -	 	1	1	1		1	 		I I
RoqC2: Riddles	 B	 Jan-Dec	l 				None		None
RIGGIES	P	Uall-Dec	1			1	None		None
Metea	। в	Jan-Dec					None		None
Mecea	1	ban-bec		1		1	None		None
RogD2:	 			i					İ
Riddles	। в	Jan-Dec	i	i		i	None		None
	. – I		i	ì		i			
Metea	B	Jan-Dec					None		None
	İ	i	i	i	i	i	i i		i
EdzA:	İ	i	i	i	i	i	i i		i
Selfridge	В	Jan	1.0-3.0	1.7-3.3	i	i	None		None
_	İ	Feb	1.0-2.5			i	None		None
	İ	Mar-Apr	1.0-2.0	> 6.0	i	i	None		None
	İ	May	2.0-2.0	> 6.0			None		None
		Jun	1.0-3.0	1.7-3.3	i	j	None		None
		Jul-Oct	j	j	i	j	None		None
		Nov	2.0-3.0	1.7-3.3	i		None		None
		Dec	1.0-3.0	1.7-3.3	i		None		None
							ĺ		
Crosier	C	Jan	0.5-3.0	2.0-3.3			None		None
		Feb	0.5-2.5				None		None
		Mar-Apr	0.5-1.5	> 6.0			None		None
		May	0.5-2.5				None		None
			1 0-3 0	2.0-3.3			None		None
		Jun	11.0-3.0	12.0	1	1			1
	 	Jun Jul-Oct					None		None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood:	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				1
	group				depth				1
			Ft.	Ft.	Ft.				
SdzaB:	 	 	l I	I I	 	 	 	 	
Selfridge	 B	Jan	1.0-3.0	1.7-3.3			None		None
	, - 	Feb		1.7-3.3			None		None
	i	Mar-Apr	1.0-2.0	> 6.0			None		None
	į	May	2.0-2.0	> 6.0			None		None
		Jun	1.0-3.0	1.7-3.3			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0				None		None
		Dec	1.0-3.0	1.7-3.3			None		None
_									
Brems	A		2.0-3.0	> 6.0			None		None
		Jun-Sep Oct-Dec					None None	 	None None
	 	Oct-Dec	2.0-3.0	> 0.0			None		None
SesA:		 	1						İ
Schoolcraft	B	Jan-Dec					None		None
	i	i	į	i	i	i			
SnlA:	İ	İ	İ	İ	İ	İ			İ
Southwest	C	Jan-Mar	0.5-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
		Apr-May	0.0	> 6.0	0.0-0.5	Brief	Frequent		None
		Jun-Oct					None		None
		Nov	0.5-2.0	> 6.0			None		None
		Dec	0.5-2.0	> 6.0	0.0-0.5	Brief	Frequent		None
Tmp 3 a						1	 	 	I
TmpA: Tracy	 B	 Jan-Dec	 	 			None	l 	None
Tracy	5	ban-bec	 			 	None	 	None
TmpB:									i
Tracy	В	Jan-Dec	i				None		None
	i	i	İ	İ	į	İ			i
TmpC2:									
Tracy	B	Jan-Dec					None		None
TmpD:	!								
Tracy	В	Jan-Dec					None		None
There is a second of the secon									
TnwA: Troxel	 B	 Jan-Dec					None	l 	None
iroxei	•	Jan-Dec					None		None
TxuA:		 							İ
Tyner	A	Jan-Dec					None		None
•	i		İ	İ		İ			
TxuB:	į	İ	į	į	į	į			İ
Tyner	A	Jan-Dec					None		None
TxuC:									
Tyner	A	Jan-Dec					None		None
TxuD:		 Jan-Dec					None	 	None
Tyner	A	Jan-Dec					None		None
TxuF:	 	 	l I	1	 	 	 	 	
Tyner	 A	Jan-Dec					None	 	None
•	 		İ	i	i	i			
Uam:	į	i	İ	İ	i	i			İ
Udorthents, loamy.									
							l		
UdeA:									
Urban land.									1
Bainter	B	Jan-Dec					None		None
	I	I	I	I	I	I	I	I	I

Table 19.--Water Features--Continued

		1	Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower		Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group	1		<u> </u>	depth	<u> </u>			1
			Ft.	Ft.	Ft.				
UdeB:	 	1		 		1	 		
Urban land.		1							
orban rana.	 			1		i	 		
Bainter	' В	Jan-Dec					None		None
	i	i	i	i	i	i	i i		i
UdeC:		İ	İ	İ		İ			İ
Urban land.									
Bainter	В	Jan-Dec					None		None
						!			
UdkA:									
Urban land.									1
Brady	 B	Tan Man	0.5-2.0	1		l 	None		None
Brady	P	Apr	0.5-1.5				None		None
		May	0.5-1.7				None		None
	! 	Jun-Oct					None		None
			0.5-2.0	> 6.0			None		None
	İ	İ	i	İ	i	i	i i		i
UdzA:	İ	į	İ	İ	İ	į	i i		į
Urban land.									
Auten	В	Jan-Mar	0.5-2.0				None		None
		Apr	0.5-1.5				None		None
		May	0.5-1.7				None		None
		Jun-Oct					None		None
	l	Nov-Dec	0.5-2.0	> 6.0			None		None
UeaA:	l I	1		1		1	 		I
Urban land.		1							
organ rana.	! 	İ				İ			i
Crosier	c	Jan	0.5-3.0	2.0-3.3			None		None
	İ	Feb	0.5-2.5	2.0-3.3			None		None
		Mar-Apr	0.5-1.5	> 6.0			None		None
		May	0.5-2.5	> 6.0			None		None
		Jun		2.0-3.3			None		None
		Jul-Oct					None		None
		Nov		2.0-3.3	'		None		None
		Dec	1.0-3.0	2.0-3.3			None		None
UeqA:	l I	1		1		1	 		I I
Urban land.		1							
organ rana.	! 	İ				İ			i
Gilford	 B	Jan-Apr	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
	i	May	0.0-2.0		0.0-0.5		Frequent		None
		Jun	1.0-3.0	> 6.0			None		None
		Jul	3.0-6.7				None		None
		Aug-Sep					None		None
		Oct	3.0-6.7				None		None
		Nov	1.0-3.0				None		None
		Dec	0.0-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
773									
UewA:	 	1		1		1			
Urban land.	l I	1	I	I I	1	1			1
Brems	 A	Jan-May	2.0-3.0	> 6.0			None		None
		Jun-Sep					None		None
	İ		2.0-3.0	1			None		None

Table 19.--Water Features--Continued

			Water	table		Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface	Duration	Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				!
UewA:	 	 	l I						l I
Morocco	। в	Jan-Mar	0.5-2.0	> 6.0			None		None
	İ	Apr	0.5-1.5	> 6.0			None		None
	İ	May	0.5-1.7	> 6.0			None		None
	İ	Jun-Aug	i	j	i	j	None		None
	İ	Sep-Dec	0.5-2.0	> 6.0		j	None		None
UfbA:									-
Urban land.	 	 	l I						l I
Brookston	। в	Jan-Mar	0.5-1.0	> 6.0	0.0-0.5	Brief	Frequent		None
	İ	Apr-May	0.0	> 6.0	0.0-0.5	Brief	Frequent		None
	İ	Jun-Oct	i	j	0.0-0.5	Brief	Rare		None
	İ	Nov	0.5-2.0	> 6.0	0.0-0.5	Brief	Rare		None
	İ	Dec	0.5-2.0	> 6.0	0.0-0.5	Brief	Frequent		None
	İ	i	İ	i	i	i	i i		i
UfhA: Urban land.	 	<u> </u> 	į Į	<u> </u> 	į Į				İ
Coloma	 A	 Jan-Dec					None		None
UfhB:	 								1
Urban land.	 	 	1	1		1			I I
Coloma	 A	Jan-Dec					None		None
	i İ	i	į	į	i	i	i i		j
UfhC:									
Urban land.									
									!
Coloma	A	Jan-Dec					None		None
UfmA:	l I	 	1	1	1	1			ļ
Urban land.	 	I I	1	I	1	1			i i
ordan rand.	 	 	1	1	1	1			+
Coupee	 в	Jan-Dec					None		None
	İ		İ	i		i	i		i
UfrA:	İ	i	İ	i	i	i	i i		i
Urban land.	İ	i	İ	İ	i	i	i i		i
Del Rey	C	Jan	0.5-3.0	2.0-4.0			None		None
		Feb	0.5-2.5	2.0-4.0			None		None
		Mar-Apr	0.5-1.5	> 6.0			None		None
		May	0.5-2.5	> 6.0			None		None
		Jun	1.0-3.0	2.0-4.0			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0	2.0-4.0			None		None
		Dec	1.0-3.0	2.0-4.0			None		None
UftA: Urban land.	 	 							
Elston	 B	 Jan-Dec					None		None
UfzA:	 	[[1		1			1
Urban land.	! 						, l		i
			İ	İ		İ	, 		
Mishawaka	A	Jan-Dec					None		None
							ı İ		1

Table 19.--Water Features--Continued

		1	Water table		Ponding			Flooding		
Map symbol and soil name	Hydro-	Month	Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency	
	group		Ft.	Ft.	Ft.					
UgaA: Urban land.	 	 	 	 		 	 			
Morocco	 B 	 Jan-Mar Apr	0.5-2.0	 > 6.0 > 6.0			 None None		None None	
		May	0.5-1.7	> 6.0			None		None	
	 	Jun-Aug Sep-Dec	0.5-2.0	 > 6.0			None None		None None	
UglA: Urban land.	 	 	 	 -		 	 - -			
Osolo	 A		3.5-6.7	> 6.0			None		None	
	 	Jun-Sep Oct-Dec	3.5-6.7	 > 6.0			None None		None None	
UgrA: Urban land.	 	 	 	 		 	 			
Rensselaer	 B	 Jan-Mar	0.5-1.0	> 6.0	0.0-0.5	Brief	 Frequent		None	
		Apr-May	0.0	> 6.0	0.0-0.5	Brief	Frequent		None	
	 	Jun-Oct Nov	0.5-2.0	 > 6.0	0.0-0.5	Brief Brief	Rare Rare		None None	
	İ	Dec	0.5-2.0	> 6.0	0.0-0.5	Brief	Frequent		None	
UgsA: Urban land.	 	 	 	 		 	 			
Riddles	 B	Jan-Dec					None		None	
Oshtemo	 B	Jan-Dec					 None		None	
UgsB: Urban land.	 	 	 	 		 	 			
Riddles	 B	Jan-Dec					None		None	
Oshtemo	 B	 Jan-Dec		 			 None		None	
UgvA: Urban land.	 	 	 	 		 	 			
Tyner	 A	Jan-Dec					 None		None	
UgvB: Urban land.	 	 	 	 			 		-	
Tyner	 A 	 Jan-Dec		 			 None		None	
UgvC: Urban land.	 	 	 	 		 	 			
Tyner	 A 	Jan-Dec		 			 None		None	
UgvD: Urban land.	 	 	 	 		 	 			
Tyner	 A	Jan-Dec		 			 None		None	
UhmA: Urban land.	 	 	 	 		 	 			
Hillsdale	 B 	 Jan-Dec 		 			 None		None	
	I	I	I	I	1	I	I	l	1	

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro-	Month	Upper	1 -					
	logic group	 	limit	Lower limit 	Surface water depth	Duration 	Frequency 	Duration	Frequency
		İ	Ft.	Ft.	Ft.	Ī	İ		İ
UhmB: Urban land.		 	 	 		 			
Hillsdale	В	Jan-Dec					None		None
UhoC: Urban land.		 	 	 		 			
Hillsdale	В	Jan-Dec					None		None
Oshtemo	В	Jan-Dec					None		None
UhoD: Urban land.		 	 	 		 			
Hillsdale	В	 Jan-Dec					None		None
Oshtemo	В	 Jan-Dec		 			None		None
UhpC: Urban land.		 	 	 		 			
Hillsdale	В	Jan-Dec					None		None
Tracy	В	 Jan-Dec		 			None		None
UhpD: Urban land.		 	 	 		 			
Hillsdale	В	Jan-Dec					None		None
Tracy	В	 Jan-Dec					None		None
UhwA: Urban land.		 	 	 		 			
Martinsville	В	Jan-Dec					None		None
UhwB: Urban land.		 	 	 		 			
Martinsville	В	 Jan-Dec					None		None
UhwC: Urban land.		 		 					-
Martinsville	В	Jan-Dec					None		None
UkaA: Urban land.		 	 	 		 			 -
Maumee	A		0.5-1.0		0.0-0.5		Frequent		None
		Apr-May Jun-Sep		 	0.0-0.5	Brief	Frequent None		None None
 			0.5-1.0				None		None
		•	0.5-1.0	> 6.0	0.0-0.5		Frequent		None

Table 19.--Water Features--Continued

Marker Septemb				Water	table		Ponding		Flood	ing
		logic	Month 			water	Duration 	Frequency 	Duration	Frequency
Wilford		group		Ft.	Ft.					
		 	 	 	 					-
Aug-Oct None No No No No No No No N	Milford	 B 								None None
Unchan land. Oshtemo		İ	Aug-Oct			1		None		None
Urban land. Oshtemo		 	Nov-Dec	0.0	> 6.0 	0.0-1.0	Brief	Frequent		None
UkxB: Urban land. Oshtemo		 		 	 					
Urban land. Oshtemo	Oshtemo	 B	Jan-Dec					None		None
UrxC: Urban land. Oshtemo		 	 							
Urban land. Oshtemo	Oshtemo	 B	Jan-Dec					None		None
Unifs: Urban land. Riddles		 	 	 	 					
Urban land.	Oshtemo	 B	 Jan-Dec					None		None
Metea B Jan-Dec None No UnfC: Urban land. B Jan-Dec None No Metea B Jan-Dec None No UmfD: Urban land. B Jan-Dec None No Metea B Jan-Dec None No Metea B Jan-Dec None No Metea B Jan-Dec None No UmpA: Urban land. Urban land. No		 	 	 	 		 	 		
UmfC: Urban land. Riddles	Riddles	 B	 Jan-Dec					None		None
Urban land.	Metea	 B	 Jan-Dec					None		None
Metea		 	 	 	 		 	 		
UmfD: Urban land. Riddles B Jan-Dec None No Metea B Jan-Dec None No UmpA: Urban land. Schoolcraft B Jan-Dec None No UmuA: Urban land. Southwest C Jan-Mar 0.5-1.0 > 6.0 0.0-0.5 Brief Frequent No Apr-May 0.0 > 6.0 0.0-0.5 Brief Frequent No Nov 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No Nov 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No Dec 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No UmwA: Urban land.	Riddles	 B	 Jan-Dec					None		None
Urban land.	Metea	 B	Jan-Dec					None		None
Metea		 	 	 	 		 	 		
UmpA: Urban land. Schoolcraft	Riddles	 B	 Jan-Dec					None		None
UmuA: UmuA: UmuA: UmuA: UmuA: Under 1 and. UmuA: Under 1 and. UmuA: Under 2 and 1 and. UmuA: Under 3 and 1 and. UmuA: Under 4 and 1 and. UmuA:	Metea	 B	 Jan-Dec					None		None
UmuA: Urban land. C Jan-Mar 0.5-1.0 > 6.0 0.0-0.5 Brief Frequent No: Apr-May 0.0 > 6.0 0.0-0.5 Brief Frequent No: Jun-Oct None No: Nov 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No: Dec 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No: UmwA: Urban land.		 	 	 	 		 	 		
Urban land.	Schoolcraft	 B	Jan-Dec					None		None
Apr-May 0.0 > 6.0 0.0-0.5 Brief Frequent No. Jun-Oct None No. Nov 0.5-2.0 > 6.0 None No. No. Dec 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No. UmwA:		 	 	 	 	 	 			
Jun-Oct None No.	Southwest	C	:							None
Nov 0.5-2.0 > 6.0 None No. Dec 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No. UmwA:		 -								None None
Dec 0.5-2.0 > 6.0 0.0-0.5 Brief Frequent No.		! 	:		1					None
Urban land.			1			1				None
Tracy B Jan-Dec None No	Tracy	 B	Jan-Dec					None		None

Table 19.--Water Features--Continued

			Water	table	Ī	Ponding		Flood	ing
Map symbol	Hydro-	Month	Upper	Lower	Surface		Frequency	Duration	Frequency
and soil name	logic		limit	limit	water				
	group				depth				
			Ft.	Ft.	Ft.				
UmwB:	 	 	1	I		1	 		
Urban land.	' 	i	i	i		i	i i		i
	İ	i	į	İ	i	i	i i		i
Tracy	В	Jan-Dec					None		None
									ļ
UmwC: Urban land.	 			1			 		l I
ordan rand.	 	 	1						l I
Tracy	В	Jan-Dec		i			None		None
UmwD:		!	!	!		!			!
Urban land.									
Tracy	 B	 Jan-Dec	l l				None		None
iiucy	2			İ					Mone
UmxA:	i İ	i	į	į	i	i	i i		į
Urban land.									
	_								
Troxel	B	Jan-Dec					None		None
UnoA:	 	 	1						l I
Urban land.		i	İ	i	i	i	i i		i
	İ	İ	İ	İ	İ	İ	j j		İ
Whitaker	C	Jan-Mar	0.5-2.0	> 6.0			None		None
			0.5-1.5				None		None
			0.5-1.7	1			None		None
		Jun-Oct					None		None
	 	Nov-Dec	0.5-2.0	> 6.0			None		None
UnqB:	 			İ					i
Urban land.	İ	į	į	į	i	į	i i		i
Williamstown	C		1.5-2.5	:			None		None
		Jul-Oct					None		None
	 	Nov	2.0-3.0				None		None
	 	Dec	1.5-2.5	1.7-3.3			None		None
Crosier	c	Jan	0.5-3.0	2.0-3.3			None		None
	İ	Feb	0.5-2.5	2.0-3.3		j	None		None
		Mar-Apr	0.5-1.5	> 6.0			None		None
		May	0.5-2.5	> 6.0			None		None
			1.0-3.0				None		None
		Jul-Oct					None		None
		Nov		2.0-3.3	1		None		None
	 	Dec	1.0-3.0	2.0-3.3			None		None
UntA:	! 	i İ		İ			ı 		
Urban land.		į	İ	İ	i	İ			j
							l İ		
Wunabuna, drained	В	Jan-May	0.0	> 6.0	0.0-2.0	:	Frequent		None
	 	Jun-Oct				Priof	None		None
	 	Nov-Dec	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
Usl:			İ	İ		İ			
Udorthents, rubbish.		İ	İ	Ì	İ	İ			İ
		[1					
W:									
Water.	 	1	1	1		1			
	I	I	I	I	I	I			I

Table 19.--Water Features--Continued

				table		Ponding		Floo	
Map symbol	Hydro-	Month	Upper	Lower		Duration	Frequency	Duration	Frequency
and soil name	logic	 	limit	limit	water depth				
	group	l	Ft.	Ft.	Gepth				
		İ							İ
WcnAI:			!						
Waterford	В	Jan-Mar	0.5-2.0	> 6.0			None	Long	Frequen
		Apr-May	0.5-1.5	> 6.0			None	Long	Frequen
		Jun					None	Long	Frequen
		Jul-Oct					None		None
		Nov-Dec	0.5-2.0	> 6.0			None	Long	Frequen
VoaA:									i
Williamstown	C	Jan-Jun	1.5-2.5	1.7-3.3			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0	2.0-3.5			None		None
		Dec	1.5-2.5	1.7-3.3	i		None		None
r 70									
WoaB2: Williamstown	l C	 Jan-Jun	1.5-2.5	1.7-3.3			None		None
		Jul-Oct					None		None
		Nov	1	2.0-3.5			None		None
		Dec	1.5-2.5				None		None
			ļ						[
WoaC2: Williamstown	 C	 Jan-Jun	1.5-2.5	1.7-3 3			None		None
WIIIIams COWN	-	Jul-Oct					None		None
			1	1					
		Nov		2.0-3.5			None		None
		Dec	1.5-2.5	1.7-3.3			None		None
WobB:		İ	İ	İ	i	i	i		i
Williamstown	C	Jan-Jun	1.5-2.5	1.7-3.3			None		None
		Jul-Oct					None		None
		Nov	2.0-3.0	2.0-3.5			None		None
İ		Dec	1.5-2.5	1.7-3.3	i		None		None
Crosier	 c	 Jan	0.5-3.0	2.0-3.3			None		None
CIOBIEL		Feb		2.0-3.3			None		None
		: -	0.5-1.5	> 6.0			None		None
		May	0.5-2.5	> 6.0			None		None
		Jun		2.0-3.3			None		None
		Jul-Oct					None		None
		Nov Dec		2.0-3.3			None None		None None
					İ				
WrxAN:									
Wunabuna, drained	В	Jan-May	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
		Jun-Oct					None		None
		Nov-Dec	0.0	> 6.0	0.0-2.0	Brief	Frequent		None
WtbA:									i
Whitaker	С	Jan-Mar	0.5-2.0	> 6.0			None		None
		Apr	0.5-1.5		i	i	None		None
j		May	0.5-1.7		i	i	None		None
j		Jun-Oct			i	i	None		None
			0.5-2.0	> 6.0	i		None		None
Word D.									
WujB: Williamstown	l I C	 Jan-Jun	1.5-2.5	1.7-3.3			None		None
	, - 	Jul-Oct					None		None
		Nov		2.0-3.5	1		None		None
		Dec		1.7-3.3			None		None
Moon	В	:	1.5-3.0				None		None
		May	:	1.7-3.3			None		None
		T G	1				None		37
İ		Jun-Sep			1				None
		Oct		1.7-3.3	1		None		None None

Table 20.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol	Restr	ictive la	ayer	Subsid	lence	 Potential	Risk of corrosion	
and soil name		Depth		i		for	Uncoated	
	Kind	to top	Hardness	Initial		frost action	steel	Concrete
	 	In 		In	In	1	 	1
AahAK:				i i			İ	İ
Abscota						Low	Low	Low
AatAN:							 	1
Ackerman, drained				2-4	4-8	 High	 High	Low
	İ	j i		i i		i	İ	İ
AbhAN: Adrian, drained				6-17	20 24	 TT d or b	 TT-1 'b	Wadamata
Adrian, drained				6-17	29-34	 	High 	Moderate
AbhAU:	İ	j i		i i		i	İ	į
Adrian, undrained				6-17	29-34	High	High	Moderate
ApuAN:	 					1	 	1
Antung, drained				3-6	6-12	High	High	Moderate
	!					!		!
AxvA: Auten	Strongly	 20-35			 	 High	 High	 High
naccii	contrasting	20 33		;				
	textural			į į		İ		İ
	stratification							
BaaA:	 						 	1
Bainter		i i		i i		Moderate	Low	Moderate
BaaB: Bainter	 	 			 	Moderate	Low	Moderate
	İ			i i				
BaaC2:	!							
Bainter	 					Moderate	Low	Moderate
BbmA:				i i			İ	İ
Baugo		50-60				High	High	Moderate
	material					1	 	
BmgA:								
Blount		30-50				High	High	Moderate
	material							1
BshA:	 					1	 	
Brady	Strongly	40-70		i i		High	Low	Moderate
	contrasting							
	textural stratification					1	 	1
	İ			i i		İ	İ	i
BsxA:								
Brems	 					Low	Low	High
Morocco						Moderate	Low	High
	ļ.	ļ i		į į		ļ.	ļ.	!
BteA: Brems						Low	Low	 High
DI GINO		- 						
BuuA:	İ	İ		i i		İ	ĺ	İ
Brookston						High	High	Low
CmbAI:	 					 	 	1
Cohoctah						High	High	Low

Table 20.--Soil Features--Continued

Map symbol	Restri	lctive 1	ayer	Subsid	lence	 Potential	Risk of corrosion	
and soil name	 Kind	Depth to top	 Hardness	 Initial	Total	for for frost action	Uncoated steel	Concrete
	l Ring	In	naraness	In	In	1	l Becci	Concrete
	 		1			I I	l I	1
CnbA:	 			 	 	 Low	 Low	 Moderate
CnbB: Coloma	 	 	 	 	 	 Low 	 Low 	 Moderate
CnbC:	i		i	İ	İ	i I	İ	İ
Coloma	i i					Low	Low	Moderate
	İ		İ	İ	ĺ	İ	İ	İ
CnbD:	İ		İ	İ	İ	İ	İ	İ
Coloma						Low	Low	Moderate
	İ		İ	İ	ĺ	İ	İ	İ
CrrA:	İ		İ	İ		ĺ	ĺ	
Coupee	Strongly	30-40				Moderate	Moderate	High
	contrasting							
	textural							
	stratification							
CvdA:								
Crosier	Dense	24-40	Weakly			High	High	Low
	material		cemented					
CvdB:								
Crosier		24-40	Weakly			High	High	Low
	material		cemented					
CwkA:								
Crumstown						Moderate	Low	High
a.15								
CwkB:	 		 		 		 	1 *** - 1-
Crumstown						Moderate	Low	High
DcrA:	 		I I	1	 	l I	l I	I I
Del Rey	 		 		 	 High	 High	Moderate
Del Rey	 		1	l I	l I			
EchAN:			İ	i I	 	l I	l I	
Edwards, drained-				4-12	19-24	High	High	Low
, , , , , , , , , , , , , , , , , , , ,	i		i	İ				
EchAU:	i		i	İ	İ	İ	İ	İ
Edwards,	İ		İ	İ	İ	ĺ	İ	İ
undrained	i			4-12	19-24	High	High	Low
EcrAN:								
Edselton, drained				4-10	15-21	High	High	Low
EcrAU:								
Edselton,								
undrained				4-10	15-21	High	High	Low
EmeA:								
Elston						Moderate	Low	Moderate
C=3.	 		1		l I	l I	1	l I
GczA: Gilford	 		 	 	 	 High	 High	Moderate
GIIIOIQ	 		1	 	 	111911	111911	Moderace
GdnA:	 		 	l I	 	l I	l I	l I
Gilford	 				 	 High	 High	Moderate
	, 	! 	İ	İ				
HfbAN:			i	İ		İ		
Henrietta,			i	i	i İ	i i	İ	
drained	i i		i	3-6	6-12	High	High	Moderate
	ı i		I			l		

Table 20.--Soil Features--Continued

Man gymbal	Restri	ictive 1	ayer	Subsid	lence	 Potential	Risk of corrosion	
Map symbol and soil name	 Kind	Depth to top	Hardness	 Initial	Total	for for frost action	Uncoated steel	 Concrete
-	KING	In	nardness	In	In		Steel	Concrete
	j i		İ	i		i	İ	İ
HfbAU:								
Henrietta, undrained	 	 	 	2-4	25-32	 High	 High	 Moderate
unararnea				2-4	23-32			Moderate
HkkA:	j i		ĺ	İ		İ	İ	İ
Hillsdale						Moderate	Low	High
HkkB:	 		 				 	
Hillsdale	i i					Moderate	Low	High
	!		!	1		ļ		
HknC2: Hillsdale	 	 	 			Moderate	Low	 Wich
niiisdale	 		 			Moderate	LOW	High
Oshtemo	i i			i		Moderate	Low	Low
			!	-		!		
HknD2: Hillsdale	 	 	 			Moderate	Low	 High
Oshtemo	i i					Moderate	Low	Low
III G2 -								
HkpC2: Hillsdale		 				Moderate	Low	 High
	j i		İ	i		i	İ	
Tracy						Moderate	Low	Moderate
HkpD2:	 		1			l I	 	l I
Hillsdale	 					Moderate	Low	High
	j i		ĺ	İ		İ	İ	İ
Tracy						Moderate	Low	Moderate
HtbAN:	 		 		 		 	
Houghton, drained	i i			6-18	55-60	High	High	Moderate
						1		
HtbAU: Houghton,	 		 			 	 	
undrained				6-18	55-60	High	High	Moderate
	[[
JaaAK:		40 70	 Weelsler			 High	 TT-1 b	
Jamestown	Dense material	42-70 	Weakly cemented			High	High 	Low
	İ		İ	i		i		İ
MfaA:								
Martinsville	 		 			Moderate	Moderate	Moderate
MfaB2:						i		
Martinsville	ļ <u> </u>					Moderate	Moderate	Moderate
MfaC2:			 			1		
Martinsville						Moderate	Moderate	Moderate
	j i		ĺ	İ		İ	İ	İ
Mfran:		 17-56		2-4	5-9	 TT	 High	
Madaus, drained	strongly contrasting	1/-56		2-4	5-9	High 	High	Low
	textural		İ	i		i		İ
	stratification			1				
MfrAU:			 				 	
Madaus, undrained	Strongly	 17-56		2-4	5-9	 High	 High	Low
	contrasting			Ì		İ	İ	
	textural							
	stratification		 	1	 	I I	 	
	1		1	1	ı	1	ı	1

Table 20.--Soil Features--Continued

Map symbol	Restr	cictive 1	ayer	Subsid	dence	 Potential	Risk of	corrosion
and soil name	Kind	Depth	 Hardness	 Initial	Total	for for frost action	Uncoated steel	Concrete
	KIIIQ	In	Hardness	In	In	ITOSC ACCION	Steel	Concrete
		111				1	 	
MgcA: Maumee	 				 	 Moderate	 High	 Moderate
MgdAN:	 	1	1	1	 	1	 	
Martisco, drained	 			4-12	 19-24 	 High 	 High 	 High
MhaA:	<u> </u>		!			ļ.		
Maumee						Moderate	High	Moderate
MhbA:	 	1	1	1	 	1	 	
Maumee					 	Moderate	 High	Moderate
		i	İ	i			İ	
MmbC2:	İ	İ	İ	j	İ	İ	İ	į
Miami	Dense	24-40	Weakly			Moderate	Moderate	Moderate
	material		cemented				!	
140								
MmdC3: Miami	Dongo	24 40	Weakly		 	 Moderate	 Moderate	 Moderate
	material	24-40	cemented		 	Moderace	Moderate	Moderate
					 		l I	
MmdD3:	İ	i	İ	i	İ	i	İ	į
Miami	Dense	24-40	Weakly			Moderate	Moderate	Moderate
	material		cemented					
MouA: Milford	 				 	 TT-1 h	 ****	
MIIIOrd	 				 	High	High	Low
MsaA:					 	1	 	
Mishawaka						Low	Low	Moderate
	İ	İ	İ	j	İ	İ	İ	į
MtsB2:								
Morley		20-40				High	Moderate	Moderate
	material							
MtsC2:	 		I	1	 	 	 	
Morley	Dense	20-40			 	High	Moderate	Moderate
-	material			1				
	İ	İ	İ	j	İ	İ	İ	į
MubD3:								
Morley		20-40				High	Moderate	Moderate
	material							
MvhAN:	 				 	1	 	
Moston, drained				 6-12	 15-24	 High	 Moderate	Moderate
11000011/ 41411104				0 11	10 11			
MvhAU:	į	i	İ	i	İ	İ	İ	į
Moston, undrained				6-12	15-24	High	Moderate	Moderate
						1		
MvkA:								
Morocco						Moderate	Low	High
MwzAN:	 		1		 		 	
Muskego, drained-				10-15	25-30	High	Moderate	Moderate
	İ	İ	İ	j	İ	İ	İ	į
MwzAU:						[
Muskego,								
undrained				10-15	25-30	High	Moderate	Moderate
OkrA:	 		I I	1	 	I I	 	1
Oshtemo					 	Moderate	Low	Low
•	i i	į	i	i		i	İ	i
OkrB:						I		
Oshtemo						Moderate	Low	Low
						I		

Table 20.--Soil Features--Continued

Man gymbol	Restr	Restrictive layer		Subsid	lence	 Potential	Risk of corrosion	
Map symbol and soil name	 Kind	Depth	 Hardness	 Initial	Total	for for frost action	Uncoated steel	Concrete
	İ	In		In	In	İ	İ	İ
OkrC2:	 	 	 	 	 	 Moderate	 Low 	 Low
OkrD:	 	 	 	 		 Moderate 	 Low 	 Low
OlcA: Oshtemo	 	i 	 	 	 	 Moderate 	 Low 	 Low
OlcB: Oshtemo	 	 	 	 	 	 Moderate	 Low 	Low
OlcC2:	 	 	 	 		 Moderate	 Low 	 Low
OlcD: Oshtemo	 	 	 	 		 Moderate	 Low 	 Low
OmgA: Osolo	 	 	 	 		 Low 	 Low 	 Moderate
PaaAN: Palms, drained	 	 	 	2-4	25-32	 High 	 High 	 Moderate
PaaAU: Palms, undrained-	 	 	 	2-4	25-32	 High	 High 	 Moderate
Pmg: Pits, gravel.	 	 	 	 		 	 	
PxlA: Psammaquents.	 		 			 	 	
Pxo: Psamments.	 		 	 		 	 	
QuiA: Quinn	 		 	 		 High	 High	 High
QujA: Quinn	 		 			 High 	 High	 High
RenA: Rensselaer	 	 	 	 	 	 High 	 Moderate 	 Low
ReyA: Rensselaer	 	 	 	 	 	 High 	 Moderate 	 Low
RopA: Riddles	 	 	 	 	 	 Moderate 	 Moderate 	 Moderate
Oshtemo	 	 	 			Moderate	Low	Low
RopB: Riddles	 	 	 	 	 	 Moderate 	 Moderate 	 Moderate
Oshtemo	 	 	 	 		Moderate	Low	Low
RopC2: Riddles	 	 	 	 	 	 Moderate 	 Moderate 	 Moderate
Oshtemo	 	 	 	 		Moderate	Low	Low

Table 20.--Soil Features--Continued

Map symbol	Restr	ictive 1	ayer	Subsid	lence	 Potential	Risk of corrosion	
and soil name	 Kind	Depth	 Hardness	 Initial	Total	for for frost action	Uncoated steel	Concrete
	 	In		In	In			
RopD2: Riddles	 		 			 Moderate	 Moderate	 Moderate
Oshtemo						Moderate	Low	Low
RoqB: Riddles	 		 	 		 Moderate	 Moderate	 Moderate
Metea	 					 Moderate	 Moderate	 Moderate
RoqC2: Riddles	 		 	 	 	 Moderate	 Moderate	 Moderate
Metea		ļ	j I			Moderate	Moderate	Moderate
RoqD2:	 					 Moderate	 Moderate	 Moderate
	İ					Moderate	Moderate	Moderate
Metea	 					Moderate	Moderate	Moderate
SdzA: Selfridge	 	 	 	 	 	 High	 High	Low
Crosier	Dense	24-40	Weakly cemented			High 	 High 	Low
SdzaB:								
Selfridge	 					High 	High 	Low
Brems	 	j		j j		Low	Low	High
SesA: Schoolcraft	 		 		 	 Moderate 	 - Low 	 Moderate
SnlA: Southwest	 	 	 			 High 	 High 	Low
TmpA: Tracy	 	 	; 	 	 	 Moderate 	 Moderate 	 High
TmpB: Tracy	 	 	 	 	 	 Moderate 	 Moderate 	 High
TmpC2: Tracy	 	 	 	 	 	 Moderate 	 Moderate 	 High
TmpD: Tracy	 	 	 	 	 	 Moderate 	 Moderate 	 High
TnwA: Troxel	 		 	 	 	 High 	 Low 	 Low
TxuA: Tyner	 	 	 	 	 	 Low 	 Low 	 High
TxuB: Tyner	 	 	 	 	 	 Low 	 Low 	 High
TxuC: Tyner	 		 	 	 	 Low 	 Low 	 High
TxuD: Tyner	 	 	 	 		 Low 	 Low 	 High

Table 20.--Soil Features--Continued

Map symbol	Restri	ictive 1	ayer	Subsidence		 Potential	Risk of corrosion	
and soil name		Depth			1	for	Uncoated	1
	Kind	to top	Hardness	Initial	Total	frost action		Concrete
		In		In	In	1		
			[1		
TxuF:								
Tyner						Low	Low	High
Uam:		 	 		 	İ	 	
Udorthents, loamy	İ	İ	i	į į	İ	i	İ	į
						1		
UdeA:								
Urban land.	 	 	 		 	 	 	1
Bainter		 				Moderate	Low	Moderate
	İ	İ	į	i i	İ	i	i İ	į
UdeB:						1		
Urban land.								
Bainter	 	 	 		 	Moderate	Low	Moderate
Bainter		 			 	Moderate	LIOW	Moderate
UdeC:		İ	i	į i		i		İ
Urban land.	ĺ		İ			İ	ĺ	
			[
Bainter						Moderate	Low	Moderate
UdkA:		 	 		 	1	 	1
Urban land.		İ	i	į i		i		İ
	ĺ		İ			İ	ĺ	
Brady		40-70				High	Low	Moderate
	contrasting textural	 			 	1	 	1
	stratification	 	 		 		 	1
			İ	i i		i		İ
UdzA:	ĺ		İ			İ	ĺ	
Urban land.								
Auten	Strongly	 20-35	 		 	 High	 High	 High
Aucen	contrasting	20-33	 		 			
	textural	İ	į	i i	İ	i	i İ	į
	stratification		1					
UeaA: Urban land.		 			 	1	 	
ordan rand.		 	 		 	1	 	1
Crosier	Dense	24-40	Weakly	i i		High	High	Low
	material		cemented			1		
<pre>UeqA: Urban land.</pre>	 	 	 		 	 	 	1
orban rana.		 			 	İ		
Gilford	i		i	j j		High	High	Moderate
						1		
UewA:								
Urban land.	 	 	 		 	l I	 	
Brems		 			 	Low	Low	High
	İ	İ	i	į į	İ	i	İ	
Morocco						Moderate	Low	High
77.51.3								
UfbA: Urban land.		 	I I		 	I I	 	
ordan rand.		! 	! 		 		 	
Brookston		 				High	 High	Low
		l	I			I		

Table 20.--Soil Features--Continued

	Restrictive layer			Subsic	lence	<u> </u>	Risk of corrosion	
Map symbol and soil name	 Kind	Depth to top	Hardness		Total	Potential for frost action	Uncoated steel	Concrete
	KING	In	naruness	In	In		Breez	concrete
UfhA: Urban land.						 	 	
Coloma		i i		i i		Low	Low	Moderate
UfhB: Urban land.	 					 	 	
Coloma						Low	Low	Moderate
UfhC: Urban land.	 					 	 	
Coloma						Low	Low	Moderate
UfmA: Urban land. Coupee	 Strongly	 30-40				 Moderate	 Moderate	 High
coupee	contrasting textural stratification					 	 	
UfrA: Urban land. Del Rey						 High	 High	 Moderate
Del Rey						 	High 	Moderate
UftA: Urban land.	 					 	 	
Elston	 	 	 			Moderate	Low	Moderate
UfzA: Urban land.	 					 	 	
Mishawaka						Low	Low	Moderate
UgaA: Urban land.	 					 	 	
Morocco						Moderate	Low	High
UglA: Urban land.	 					 	 	
Osolo				ļ		Low	Low	Moderate
UgrA: Urban land.	 					 	 	
Rensselaer						High	Moderate	Low
UgsA: Urban land.	 					 	 	
Riddles		 				Moderate	Moderate	Moderate
Oshtemo	 	 	 	 	 	 Moderate 	 Low 	 Low

Table 20.--Soil Features--Continued

	Restr	ictive la	layer Subsidence			1	Risk of corrosion	
Map symbol and soil name		Depth			m-+-1	Potential for frost action	Uncoated	
	Kind	to top	Hardness	Initial In	In	Irost action	steel	Concrete
	İ			i i		i		
UgsB: Urban land.	 		 			 	 	
Riddles	 		 			 Moderate 	 Moderate 	 Moderate
Oshtemo	 		 	i i		Moderate	Low	Low
UgvA: Urban land.	 		 			 	 	
Tyner	 		 			Low	Low	 High
UgvB: Urban land.	 		 			 	 	
Tyner	 		 			Low	 Low 	 High
UgvC: Urban land.	 		 			 	 	
Tyner	 		 	 		Low	Low	 High
UgvD: Urban land.	 		 			 	 	
Tyner	 		 	i i		Low	Low	High
UhmA: Urban land.	 		 			 	 	
Hillsdale	 		 	i i		Moderate	Low	High
UhmB: Urban land.	 		 			 	 	
Hillsdale	 		 	i i		Moderate	Low	High
UhoC: Urban land.	 		 			 	; 	
Hillsdale	 		 	 		Moderate	Low	 High
Oshtemo	 		 	 		Moderate	Low	Low
UhoD: Urban land.	 		 			 	; 	
Hillsdale	 		 			Moderate	Low	 High
Oshtemo	 		 			 Moderate 	 Low 	Low
UhpC: Urban land.	 		 			 	 	
Hillsdale	 		 			 Moderate 	Low	 High
Tracy	 		 			 Moderate 	Low	 Moderate

Table 20.--Soil Features--Continued

Depth		Rest	rictive la	ayer	Subsid	dence		Risk of	corrosion
In	Map symbol and soil name				-				!
Umplo: Umban land. Hillsdale	-	Kind	-	Hardness	.		frost action	steel	Concrete
		 	In		In	In 		 	
Tracy	-		į		į				i I
Unban land.	Hillsdale	 		 		 	 Moderate	 Low 	 High
Urban land.	Tracy	 		 		 	Moderate	Low	Moderate
Unw8: Urban land. Martinsville		 		 		 	 	 	
Urban land.	Martinsville	 		 		 	Moderate	 Moderate	Moderate
Univo: Unit:		 		 	 	 	 	; 	i
Urban land.	Martinsville	 		 		 	Moderate	 Moderate	Moderate
Urban land.		 	 	 	 	 	 	 	
Urban land.	Martinsville	 		 		 	Moderate	 Moderate	Moderate
UkeA: Urban land. Milford		 	 	 	 	 	 	; 	i
Urban land.	Maumee	 		 		 	Moderate	 High 	Moderate
UkxA: Urban land.		 	 	 	 	 	 	; 	i
Urban land. Moderate Low Low UkxB:	Milford		j	 		 	High 	 High 	Low
UkxB: Urban land.		 		 		 	 	 	
Urban land.	Oshtemo		j	 		 	Moderate	Low	Low
UkxC: Urban land.		 	 	 		 	 	 	
Urban land. Moderate Low Low UmfB: Urban land. Moderate Moderate Moderate Moderate Metea	Oshtemo			 		 	Moderate	Low	Low
UmfB: Urban land. Riddles		 		 		 	 	 	
Urban land.	Oshtemo			 		 	Moderate	Low	Low
Metea Moderate		 		 	 	 	 	; 	i
UmfC:	Riddles	 		 		 	Moderate	Moderate	Moderate
Urban land.	Metea	 	j	 	 	 	Moderate	Moderate	Moderate
i i i i i i i		 - 		 	 	 - 	[-	
Metea Moderate Moderate Moderate	Riddles	 		 		 	Moderate	Moderate	Moderate
	Metea	 	i	 	j	 	Moderate	Moderate	Moderate

Table 20.--Soil Features--Continued

Man symbol	Restrictive layer			Subsidence			Risk of corrosion	
Map symbol and soil name	 Kind	Depth	 Hardness	 Initial	Total	Potential for frost action	Uncoated steel	Concrete
	İ	In		In	In		l	İ
UmfD: Urban land.	 	 	 			 	 	
Riddles	 		 			 Moderate 	 Moderate 	 Moderate
Metea	 		 			 Moderate 	 Moderate 	 Moderate
UmpA: Urban land.	 	 	 			 	 	
Schoolcraft	 		 			 Moderate 	 Low 	 Moderate
UmuA: Urban land.	 	 	 			 	 	
Southwest	 		 	i i		 High 	 High 	Low
UmwA: Urban land.	 	; 	 			; 	 	
Tracy	 		 	i i		Moderate	 Moderate 	High
UmwB: Urban land.	 		 			 	 	
Tracy	 		 	i i		Moderate	 Moderate 	High
UmwC: Urban land.	 	 	 	i i		; 	 	
Tracy	 		 	 		Moderate	Moderate	High
UmwD: Urban land.	 	 	 			 	 -	
Tracy	 			i i		Moderate	 Moderate 	High
UmxA: Urban land.	 	 	 			 	 	
Troxel	 		 	i i		 High 	Low	Low
UnoA: Urban land.	 	; 	 			; 	 	
Whitaker	 		 	i i		 High 	 High 	Moderate
UnqB: Urban land.	 	 	 			 	 	
Williamstown	 Dense material	20-40	 Weakly cemented			 Moderate 	 Moderate 	 Moderate
Crosier	 Dense material	24-40	 Weakly cemented			 High 	 High 	 Low
UntA: Urban land.	 	 	 			 	 	
Wunabuna, drained	 		 	0	2-10	 High 	 Moderate 	 Low

Table 20.--Soil Features--Continued

Map symbol	Res	trictive l	ayer	Subsidence		 Potential	Risk of corrosion	
and soil name		Depth		-i		for	Uncoated	
	Kind	to top	Hardness	Initial	Total	frost action	steel	Concrete
		In		In	In			
Usl:			 				 	
Udorthents,		i	İ	i i		İ	İ	İ
rubbish.	 	İ	İ	İ			 	
W:							 	
Water.			 				 	
WcnAI:		į	į	į į				
Waterford	 					High	Moderate	Low
WoaA:		į	į	į į		į	ĺ	į
Williamstown	Dense material	20-40	Weakly cemented			Moderate	Moderate	Moderate
WoaB2:			 				 	
Williamstown	Dense material	20-40	Weakly cemented			Moderate	Moderate	Moderate
WoaC2:			 				 	
Williamstown	Dense material	20-40	Weakly cemented			Moderate	Moderate	Moderate
WobB:	 		 				 	
Williamstown	Dense material	20-40	Weakly cemented			Moderate	Moderate	Moderate
Crosier	 Dense material	24-40	 Weakly cemented			 High 	 High 	Low
WrxAN:	 		 				 	
Wunabuna, drained	 			0	2-10	High	Moderate	Low
WtbA:								
Whitaker	 					High	High 	Moderate
WujB:				į į				
Williamstown	Dense material	20-40	Weakly cemented			Moderate	Moderate	Moderate
Moon	 					 Moderate	 Moderate	 Moderate

Table 21.--Classification of the Soils

Soil name	Family or higher taxonomic class
Abscota	 Mixed, mesic Oxyaquic Udipsamments
	Sandy, mixed, mesic Histic Humaquepts
	Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists
	Sandy, mixed, mesic Histic Humaquepts
	Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Aquollic
140011	Hapludalfs
Bainter	Coarse-loamy, mixed, semiactive, mesic Mollic Hapludalfs
Baugo	Fine-loamy, mixed, active, mesic Aeric Epiaqualfs
Blount	Fine, illitic, mesic Aeric Epiaqualfs
	Coarse-loamy, mixed, active, mesic Aquollic Hapludalfs
Brems	Mixed, mesic Aquic Udipsamments
Brookston	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Cohoctah	Coarse-loamy, mixed, active, mesic Fluvaquentic Endoaquolls
	Mixed, mesic Lamellic Udipsamments
	Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Ultic
	Hapludalfs
Crosier	Fine-loamy, mixed, active, mesic Aeric Epiaqualfs
	- Coarse-loamy, mixed, active, mesic Typic Hapludalfs
	Fine, illitic, mesic Aeric Epiaqualfs
	Marly, euic, mesic Limnic Haplosaprists
	- Marly, euic, mesic Limnic Haplosaprists
	- Coarse-loamy, mixed, active, mesic Typic Argiudolls
	- Coarse-loamy, mixed, superactive, mesic Typic Endoaquolls
	- Coarse-loamy, mixed, superactive, meste Typic Endoaquoiis
	- Coarse-loamy, mixed, active, mesic Typic Hapludalfs
	- Coarse-roamy, mixed, active, mesic rypic napidualis - Euic, mesic Typic Haplosaprists
	,
	Fine-loamy, mixed, superactive, nonacid, mesic Aeric Epiaquepts
madaus	Coarse-silty over sandy or sandy-skeletal, carbonatic over mixed, mes
W	Histic Humaquepts
	Fine-loamy, mixed, active, mesic Typic Hapludalfs
	Fine-silty, carbonatic, mesic Histic Humaquepts
	Sandy, mixed, mesic Typic Endoaquolls
	Loamy, mixed, active, mesic Arenic Hapludalfs
	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
	Fine, mixed, superactive, mesic Typic Endoaquolls
	Sandy, mixed, mesic Typic Hapludolls
	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
	Fine, illitic, mesic Oxyaquic Hapludalfs
	Mixed, mesic Aquic Udipsamments
	Coprogenous, euic, mesic Limnic Haplosaprists
	Coprogenous, euic, mesic Limnic Haplosaprists
	Coarse-loamy, mixed, active, mesic Typic Hapludalfs
	Mixed, mesic Typic Udipsamments
	Loamy, mixed, euic, mesic Terric Haplosaprists
Psammaquents	•
Psamments	
	Coarse-loamy, mixed, active, mesic Typic Endoaqualfs
	- Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
	- Fine-loamy, mixed, active, mesic Typic Hapludalfs
	- Fine-loamy, mixed, superactive, mesic Typic Argiudolls
	- Loamy, mixed, active, mesic Aquic Arenic Hapludalfs
Southwest	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Tracy	- Coarse-loamy, mixed, active, mesic Ultic Hapludalfs
Troxel	Fine-silty, mixed, superactive, mesic Pachic Argiudolls
Tyner	- Mixed, mesic Typic Udipsamments
Udorthents, loamy	- Udorthents
Waterford	Coarse-loamy, mixed, active, mesic Fluvaquentic Eutrudepts
Whitaker	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Williamstown	Fine-loamy, mixed, active, mesic Aquic Hapludalfs